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CONTENTS, APRIL 1953

THE MERRY-GO-ROUND OF REDUCING DIETS—*Ruth M. Leverton*, Ph.D. 333

GROUP THERAPY IN REDUCING. Two-Year Follow-Up of Boston Pilot Study—*Arnold B. Kurlander*, M.D. 337

EXERCISE AND WEIGHT CONTROL. Frequent Misconceptions—*Jean Mayer*, Ph.D., D.Sc., *and Fredrick J. Stare*, Ph.D., M.D. 340

TO BE OR NOT TO BE—FAT (and How to Tell If You Are)—*Josef Brožek*, Ph.D. 344

DIETARY FACTORS IN TREATING HEART DISEASE—*Carleton B. Chapman*, M.D. 346

INFANT FEEDING IN THE AMERICAN COLONIES—*Felisa J. Bracken* 349

NITROGEN BALANCES AND AMINO ACID CONTENT OF SELF-SELECTED DIETS OF WOMEN—*May S. Reynolds*,. Ph.D, *Mary F. Futrell*, Ph.D., *and C. A. Baumann*, Ph.D. 359

CURRENT COMMENT

Tips on Telecasting—*Sarah Ellen Merritt Wenger* 365

Scaling Home Recipes for Institution Use—*Pearl Jackson Aldrich*, Ph.D. 366

BOOK REVIEWS 370

GLOBAL AMBASSADORS 372

CURRENT LITERATURE 376

NEWS NOTES 394

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The Merry-Go-Round of Reducing Diets[1]

RUTH M. LEVERTON, Ph.D.

Professor of Human Nutrition Research, University of Nebraska, Lincoln

RECOGNITION of the influence of emotional factors on food intake provides many answers to heretofore unanswerable questions about what people eat, and don't eat, and why. The dietetic and medical professions welcome the entrance of psychology and psychiatry into the many areas of the science of food and nutrition, but nowhere are these newcomers more enthusiastically greeted or deeply appreciated than in the area of weight control, or more specifically weight reduction.

The dietitian has long realized that there is more to weight reduction than a warning lecture from the doctor and a written dietary prescription. She has known that counting calories faithfully and accurately requires more than arithmetical ability on the part of the patient; she has experienced failures with patients who could not, or would not, live on a small caloric budget. She has been criticized for being unsuccessful with some of the patients who were referred to her after they had not responded to office-call treatment by the doctor. Such criticism was unjustified because the same factors which made the patients unresponsive to dietary direction received in the doctor's office were also operating to make them unresponsive to any dietary treatment until they had help in solving emotional problems. It is natural, therefore, that we welcome the contribution of other disciplines which study the human mind and body and recognize food, both as an influencing factor and as a factor to be influenced in the life of every person.

Emphasis on the recognition and treatment of the emotional factors involved in obesity does not mean de-emphasis of the dietary factors, nor does it alter the basic scientific principle which governs body weight—namely, the relation between the body's energy supply and demand. In many ways the food for weight reduction is more important and must assume more responsibility than ever before. Current wide-spread warnings of the health and social hazards of obesity mean that more people are becoming conscious of their weight, are seeing their doctors, and then starting on reducing diets. Then there are many more people who, unfortunately, are reducing without a doctor's care. Inability to stay on a reducing diet formerly safeguarded most people from permanently injuring their health by long periods on grossly inadequate diets. We can no longer depend on this safeguard. By understanding some of their emotional problems, they may be able to stay on dangerously inadequate reducing diets long enough to damage their health permanently.

To be completely successful, dietary and psychologic treatment or rehabilitation must go hand in hand. When receiving help on emotional problems a person is particularly receptive to suggestions for improving himself and his situation, and at this time he can be motivated to replace poor food habits with good ones. But treatment of psychologic ills could fail if the patient became seriously malnourished. Regardless of caloric level, a poor diet will eventually produce physical ills which will replace or add to the emotional problems being treated, which will then generate problems of their own.

A large proportion of the people who will attempt to reduce will not have the help of psychiatry or psychology. Through popular information channels, through friends, and from their family doctors they may receive some insight into the role of emotional factors which dominate their eating habits. Such insight can make the difference between failure and success in their following a low-calorie diet, but the quantity and quality of the food they choose will still determine their weight and health.

SOURCES OF DIETS

In general, present-day reducing diets come from one of the following four sources: (a) figments of unbridled imaginations, uninhibited by scientific knowledge, (b) accumulations of both sound and "screw-ball" ideas which happened to produce the desired results for someone at some time and therefore are handed down and promoted, (c) sound scientific ideas leading to careful and intelligent planning of low-calorie diets, and (d) the same as (c) but with an added feature—organized scientific testing of the

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 23, 1952.

diet with a group of overweight people. The diets vary in point of emphasis, nutritive value, variety of food permitted, and number of meals and snacks recommended. They also vary in their accompaniments. Some reducing diets are garnished heavily with physical exercises which frequently increase the appetite, some by directions for improving mental hygiene, and still others by beauty treatments. All are aimed at making the diet seem more purposeful, keeping the dieter busy, and preparing him for his new role as a thin person. Such accompaniments can be helpful in a reducing regimen and have a place, so long as they do not pretend to be substitutes for a nutritious low-calorie diet.

THE MERRY-GO-ROUND

Now let's consider the kinds of diets available to the potential reducer, especially if he is allowed to make his own choice. In our present-day carnival of foods, there is an entire merry-go-round devoted to nothing but reducing diets, and these are not always low-calorie diets. The merry-go-round spins 'round and 'round while the barker urges the spectators to buy a ticket and choose a place to ride. Having decided he is overweight, the reducer buys his ticket and takes his choice.

The Settee or Bench

He may choose the settee or bench on the merry-go-round. This seat is for the timid and inexperienced, or the lazy ones. Certainly it is the easiest, the most comfortable, and perhaps very similar to his usual activity. He may even eat a candy bar or a sack of popcorn while he rides around on this diet. There are many reducing diets available today which are like the settee or bench on the merry-go-round. Their advertisements say that you can eat as usual if you only munch or imbibe some special preparation purchased at great profit to the originator.

The Whirling Tub

The settee or bench is spurned by those who think that nothing can be effective unless it is exhausting or unless it tastes bad. Such people choose the other extreme on the merry-go-round, the whirling tub. It is the most strenuous way to ride, and its constant gyrations give the reducer-rider no time for thought. After each ride he staggers off to sit on the sidelines to recover both his equilibrium and his weight. There are many of the whirling tub reducing diets, monotonous to the nth degree. Either they include only two or three foods which are never varied or they include some concoctions of nutritious by-products which taste "awful," and which, therefore, must be efficacious. In addition to the limited, unvaried food, the whirling-tub regimen also includes directions for mental and physical gyrations designed to keep the reducer dizzy-busy and thereby convinced he is getting his money's worth.

The Spirited Red Charger

A potential reducer has other choices of rides on the merry-go-round besides the two extremes just mentioned. He may choose the spirited red charger with flowing mane and arched tail. This creature looks effective, even though he goes only up and down, up and down, and when the merry-go-round stops, it is just due to chance if the rider's weight is up or down from the starting point. The spirited red charger typifies the diets that advocate intermittent starving and eating, or stuffing. These, too, are accompanied by physical and mental gymnastics which are usually less severe than the gyrations of the whirling tub.

The White Steed

Finally, the reducer may choose to ride on the handsome white steed with the gold harness. This choice gives him a fine air of dignity, high social status, and superiority. It typifies the high-toned diets with unusual and elegant menus, special preparations, and large grocery bills. These make the diet rate high in snob appeal.

Occasionally a passenger on this merry-go-round changes his seat or steed in the middle of a ride. Such restlessness is discouraged, practically forbidden, by the ticket-taker who assumes no responsibility for the outcome if the reducer changes diets.

In most cases, the only people who profit from these rides on the reducing merry-go-round are the ticket-takers. So we must look elsewhere for effective, constructive low-calorie diets. In fact, we will have to leave the whole food carnival and go to the grocery store and the market in our own home town to find what we are looking for.

SPECIFICATIONS FOR EFFECTIVE LOW-CALORIE DIETS

What are effective, constructive, low-calorie diets? To answer this question, I am offering you a set of specifications based on scientific knowledge and tempered with personal experience. You will want to adapt them to your needs and adorn them with your own experiences. Then you will have a standard against which to measure the efficacy and desirability of any low-calorie diet.

Caloric Intake Below Need

The first specification for a low-calorie diet is that the caloric intake must be reduced below the caloric need. Remember that the caloric intake is often underestimated and the caloric need overestimated. Only in rare cases would it seem safe to reduce the caloric intake below the basal requirement of a patient, and then probably the patient should be kept in bed. Diets supplying only 1000 calories a day are used too indiscriminately. Fre-

quently they are inadequate in several nutrients. Also, too great a reduction in caloric intake results in lowered activity and vitality, and eventually in a lowered need. There is a limit to how great a drop in caloric intake can be physically tolerated, regardless of the mental attitude of the patient. Enthusiasm over rapid weight loss can temporarily mask undernutrition and nervous exhaustion. A 1200- to 1600-calorie diet is much safer for reducing weight than one of lower energy value. This caloric allowance permits a greater selection of food and the nutritive value of the diet will not be as marginal as that of the 1000-calorie diet.

In general, basal requirement plus 10 per cent is a safe caloric intake for the sedentary adult during weight reduction. A moderately active individual needs 25 or 30 per cent above his basal requirement; and the very active person needs at least 50 per cent above basal requirement, and as much as 75 per cent above if his work is extremely strenuous. Tentative low-calorie allowances can also be calculated by using 12, 14, and 17 or 19 calories per pound of ideal weight for each activity group respectively. This method, however, has the inaccuracy of not taking into account the decline of basal metabolic rate with age.

Weight reduction in children is usually accomplished best by keeping the weight constant until growth in height can catch up with the body's weight. A justified reduction in caloric intake would be to reduce the amount of candy, soft drinks, and other sources of "lone-wolf" calories. The energy revenue lost by omitting such foods, however, is often better replaced by calories from protective, growth-promoting foods rather than left out entirely and placing a child on an unrealistically low caloric intake.

How can the patient be helped to adjust to less food on his low-calorie diet? Small meals and snacks may be more satisfying to him than the customary three meals a day. The amount of concentrated, compact foods needs to be reduced because such foods have a relatively small volume in relation to their caloric value. The amount permitted should be used as fat rather than as sugar. On the other hand, bulky foods should be used with sensible moderation. Sometimes they are not tolerated in large amounts. Also, the intelligent patient is not fooled by the mirage of quantity. Increasing the intake of liquids, especially water, can help prevent fatigue from dehydration and also help to relax a tense and empty stomach. Bouillon, lemon juice sweetened without sugar, and coffee and tea offer acceptable variety for this purpose.

It is not unusual for a patient to say that he is having more food on a low-calorie diet than he ever had on his own self-chosen diet. This is usually a result of the lowered intake of concentrated foods. When introducing a patient to a low-calorie diet, it is important for him to realize that plateaus in his weight may occur in place of a steady daily drop in weight. Otherwise, he will become irrevocably discouraged while waiting on a plateau for the next downward step in weight.

Improvement of Nutritional Status

The second specification of a low-calorie diet is that it improve the nutritional status of the patient, if improvement is needed, or that it maintain an already existing high level of good nutrition. For this, the diet must be nutritionally adequate. Often the overweight person has been counteracting, in part, the deficiencies of a poor diet by using large quantities of food. The dieter's self-restriction of quantity can then lead to physical impairment, and he has reason for saying that reducing his food intake makes him feel badly. There also can be physical improvement in the patient on a low-calorie diet when it is better in quality than his self-chosen pre-reducing diet. Many patients have never, regardless of their weight, eaten well enough to experience the sense of well-being and buoyancy that characterizes good nutrition. They don't know what they are missing. On the other hand, there is nothing as debilitating, mentally or physically, to the person who is accustomed to the buoyancy that goes with good nutrition, as the knowledge that he is being inadequately fed even if for only a few weeks.

Correction of Faulty Food Habits

The third specification for a low-calorie diet is that it revise faulty food habits and establish good food habits. The low-calorie diet should be planned so that it will develop the patient's taste and interest in eating an assortment of everyday foods which will provide an optimal diet. These will come as a result of more favorable experiences and less empty-headed conversation about such foods. The diet should develop in the patient a physical contentment with smaller quantities of food, smaller than those to which he has grown accustomed. The diet should emphasize the sense of *well-being* rather than a sense of *fullness*. No man wears two suits or two pair of shoes at the same time just because he owns two, nor does a woman wear several pairs of earrings or carry several purses at the same time. The well-dressed person knows the comfort and poise that comes from wearing the right kind of clothes and accessories in the right amounts. In the same way, the well-fed person knows the comfort and poise that comes from discriminate eating, or developing a tailor-made appetite which fits his needs exactly.

To meet this third specification, the low-calorie diet will need to be not only nutritionally adequate but it must be built from everyday ordinary foods, generally unadorned by man-made combinations of

caloric creations. The diet should permit the use of foods in season, and it should be reasonable in the task of preparation and moderate in cost. There should be a reasonable but not unlimited variety of foods. Too much variety or willy-nilly choice leads to a jack-of-all-trades-and-master-of-none diet. It may have many small nutritive abilities, but seldom can it master the job of limiting calories to a reducogenic level while still keeping the nutritive value high.

A low-calorie diet should not be regarded as a "sometime thing," to be endured when weight gets out of hand and to be discarded at the first possible moment. It should be a simple adaptation or smaller edition of the normal diet.

Psychologic Appeal

The fourth specification for the low-calorie diet is that it must appeal in some way to the reducer or patient. It must appeal to his ambition to reduce, or his common sense, or his aesthetic sense, or his understanding of the principle of weight loss, or if nothing else, at least to his sense of martyrdom. This is the realm where emotional factors exert far more influence than the physical and dietary ones.

Professional Examples

The fifth and final specification for the low-calorie diet is the one most likely to be ignored. It is this: a low-calorie diet should be recommended, prescribed, explained, and followed under the direction of a doctor and dietitian who are themselves of normal weight. Neither the medical nor the dietetic profession subscribes to the philosophy, "Don't do as I *do*, but do as I *say*." Relatively few of the men and women who are within the range of ideal weight arrive or stay there without conscious effort. Some must work to keep their weight up to normal, but more have to work to keep their weight down to normal. The important thing is that they do work at the job of weight control, and they work at it in such a way that they are successful. These people deserve unlimited praise and recognition for their vigilance and for the fine example they set for the rest of us.

Being overweight is becoming increasingly embarrassing for the dietitian or nutritionist. It suggests to the world that her will-and-won't power is not equal to meeting the demands of the present-day world, and her inadequacies have led her to convert frustrations into excess calories. It is not unusual to hear an overweight person say, "If the dietitian with all her training can't control her weight, how can an untrained person like me be successful?"

To give the greatest service to the greatest number of people and to be the most effective members, not only of our profession but of a world community, we need to be examples of the intelligent application of the science of food and nutrition to everyday food selection.

Converted Rice in the Rice-Fruit Diet

Kempner's rice-fruit diet for hypertension has caused considerable controversy. One criticism is its inadequacy, especially in protein, fat, calcium, phosphorus, thiamine, riboflavin, and niacin. However, one of the main reasons rice was selected as the basis of this diet is its low sodium content.

When rice forms a major part of the diet, it has been clearly demonstrated that its nutrient content may influence nutritional status. Since there is no appreciable difference between the sodium content of converted and polished rice, a study was made to determine how much the substitution of converted rice for polished rice would affect the nutrient content of the rice-fruit diet.

Converted rice is obtained by parboiling under pressure before husking and milling. In this way, nutrients are transferred from the bran and husk to the endosperm of the rice kernel. The result is a product of increased thiamine and niacin value, with appearance, flavor, and cooking properties similar to those of polished white rice.

Four rice-fruit diets used for treating hypertension were studied. The average amount of the foods used in these four diets was: 1487 gm. fruit and fruit juices, 82 gm. sugar and maple sirup, and 494 gm. cooked rice. In addition, one diet contained 50 gm. peas and another, 14 gm. puffed rice.

Using standard food tables, the individual diets were calculated twice for calories, protein fat, carbohydrate, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid. For the first calculation, figures for polished rice were used; for the second, figures for converted rice.

There was an appreciable increase in the total content of the thiamine and niacin with the substitution of converted rice. The average thiamine value of the four diets increased from 56 to 75 per cent of the daily dietary allowance recommended by the National Research Council for the sedentary man. The average niacin value rose from 54 to 83 per cent of the same standard. The other nutrients calculated were not influenced by the substitution of converted rice.—*Susan B. Merrow, Assistant Nutritionist, Vermont Agricultural Experiment Station, University of Vermont and State Agricultural College, Burlington.*

Group Therapy in Reducing

Two-Year Follow-Up of Boston Pilot Study[1]

ARNOLD B. KURLANDER, M.D.

Medical Director, Assistant Chief, Division of Chronic Disease and Tuberculosis, U.S. Public Health Service, Washington, D. C.

FACTORS which lead to overweight are many and varied. Even among the experts, however, there is little agreement as to what these factors are or the degree to which they contribute to obesity. We can agree upon food as the most visible cause—too much food. But the difficulty some people have in cutting their dietary cloth to fit their metabolic pattern remains a diverse problem. It may be a matter of habits established in early life. In some cultures, eating well or plumpness is considered a sign of health or of social and financial achievement. On the other hand, many people may eat too much carbohydrate in the interest of economy and acquire their overweight for this reason. An emotional factor may be associated with either of these situations. It may, indeed, be wholly responsible for the overeating of some individuals.

To dietitians, it is not necessary to describe in detail the theory of the various experiments in group therapy for weight control. The idea that some people overeat to compensate for what may be called emotional malnutrition has been widely discussed. I am sure that, as nutritionists and dietitians, you have long been familiar with the adolescent who uses food as a sort of salve for the hurts and disappointments of growing up; with the young adult who eats in an attempt to forget loneliness or boredom; with the middle-aged man or woman who eats when—as he puts it—he's "nervous." Unfortunately, however, food taken to ease emotional tension can do great physical damage if it is more than the body needs.

Ideally, perhaps, the answer would be individual attention—a search for each overeater's particular attitudes toward food, and treatment that would change his eating pattern. Practically, of course, our resources for individual therapy are much too limited for this. Furthermore, many physicians find it difficult to devote the necessary time to overweight patients, since for the most part they are not overtly ill. But there is therapeutic value in the group—not just "misery loves company" but perhaps "company gives courage." Group therapy for persons with problems in overweight, therefore, seemed worth attention. To test this method, the U. S. Public Health Service cooperated with the Massachusetts Department of Health and the New England Health Center in a pilot study which was started in the Boston area in the fall of 1949.

EXPERIMENTAL GROUPS

The groups which were studied were made up of from fifteen to twenty persons each, mostly women, all of whom had medical approval for a course of weight reduction. Nutritional information was made available, but members were not required to have it. Leaders included a psychiatrist, an internist, a clinical psychologist, teachers, a minister, and graduate students in psychology. All leaders were experienced in working with groups.

Weekly meetings lasting from an hour to an hour and a half were held for about sixteen consecutive weeks. The discussions centered around the eating and reducing problems of the members. Although the leaders took some responsibility in guiding the course of discussion and in keeping it going, by and large the group members themselves determined what they would talk about.

Altogether there were 120 members of the groups who attended two or more sessions, and whose weight we recorded: (a) at the beginning of the sessions, (b) at the end of the group meetings, (c) twelve to eighteen months after the end, and (d) twenty-four to twenty-eight months later. Since a few of them were less than 10 per cent overweight, initially we did not consider them in our calculations. Several others either moved from the area or became pregnant and could not be counted. At the time of our second-year follow-up, then, we obtained current weights on 95 of the original 120.

The desirable weight of each individual was de-

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 21, 1952.

termined at the beginning of the study, according to the Metropolitan Life Insurance Company (1, 2) weight standard. Inasmuch as the loss of 20 lb. may bring one person to his desirable weight, whereas it is only a beginning for another, we have measured achievement in terms of the *per cent of excess weight lost*. For example, we would say that a person who initially weighed 150 lb., whose ideal weight was 130 lb., and who lost 20 lb., had lost 100 per cent of his excess weight. Then again, a 200-lb. patient with a desirable weight of 140 lb. who lost 20 lb., had lost only 33⅓ per cent of his excess weight.

The objective of the group therapy sessions was not immediate loss of weight, but to change attitudes and patterns of eating, in the hope that this would lead to eventual loss of weight. Progress in such an undertaking is understandably slow and difficult, and it was not expected that the records would show startling weight changes by the end of the sessions. As a matter of fact, 72 members *had* lost—from 1 to 48 lb.—by that time. Follow-up at the end of a year and again after two years, however, gave a better measurement of the two principal aims of any weight control project—attainment of desirable weight and maintenance of weight at that level.

In analyzing our figures, we first selected three ranges of achievement, all based on percentage of excess weight lost. The first and narrowest range, as you would expect, includes those persons who lost 100 per cent of their excess weight. The second, broader range includes those persons who lost between 50 and 100 per cent inclusive of their excess weight; and the third and nearly all-inclusive achievement range is made up of those who lost between 10 and 100 per cent inclusive of their excess weight.

We then selected the forty-three subjects who had lost between 10 and 100 per cent of their excess weight at the end of the first year of follow-up and distributed them statistically in the proper ranges. Then we examined their status at the end of the second year.

RESULTS AFTER TWO YEARS

This is what we found. Assuming that our ultimate goal was loss of 100 per cent of excess weight and long-term maintenance of that weight loss, let us see how many persons were successful. Of 95 persons who attended two or more sessions and were followed for two years, one person showed a loss of 100 per cent of excess weight after one year, but after two years she had regained about one-third of the weight lost.

Since a large proportion of the group members had a great many extra pounds (several weighed nearly twice their desirable weight), perhaps it was expecting too much to hope they would actually lose all their excess weight. It is unreasonable, after all, to require perfection. Suppose we now examine the second, broader range—those who lost 50 to 100 per cent inclusive of their excess weight. Of 95 persons who attended two or more sessions and were followed for two years, 8 showed a loss of 50 to 100 per cent of excess weight after one year. At the end of two years, 4 still showed a loss of 50 to 100 per cent of excess weight but the other 4 no longer showed this amount of weight loss. Thus half had fallen below the level of achievement two years later.

The broadest measure of achievement was a loss of 10 per cent or more of excess weight. Of 95 persons who attended two or more sessions, 43 showed a loss of 10 to 100 per cent of excess weight after one year. After two years, 29 still showed a loss of 10 to 100 per cent of excess weight, but 14 no longer showed this amount of weight loss.

We have not proposed a third year of follow-up of these subjects. On the basis of the first and second years of follow-up, however, and upon close examination of the 29 "survivors"—as we might call them—we have found that 13 had gained 5 lb. or more between the first and second years. Thus, we would be justified in expecting that in a third year the number of successes would again be fewer.

CONCLUSIONS FROM STUDY

It would be a mistake to overestimate the significance of this study or of the results I have been discussing. The number of persons studied—95—is far too small to permit generalizations. It is possible that they were a special group in some way of which we have no knowledge—that all, or most of them were persons with atypical problems. Although, in general, the philosophy of group therapy was the same in all groups, it may be that methods varied somewhat from one group to another. It is probable, in fact almost certain, that some leaders were more successful than others. In this type of procedure, of course, the personality of the group leader makes a great deal of difference.

On the other hand, I think there are certain points which the study bears out. One is that getting together in groups to talk about the problems of overweight is not a sure cure for obesity. Some few of the people we studied did show a pattern of weight loss and maintenance of weight loss at the end of two years. Perhaps a somewhat different technique would have helped the others who did not profit at all from the methods used.

A second point is that, although the people in our study met as groups, their weight records show that they remained very much individuals. There was little that one could reasonably call a trend toward either success or lack of success. Among the 29 we have counted as having benefited from the groups, some had lost weight at the end of the group sessions and continued a gradual weight loss over the following two years. Others had lost nothing or had gained during the sessions but lost weight later.

Among the 95, there were a number whose weight fluctuated markedly during the two years. One woman, whose desirable weight would be 134, started the sessions at 173 lb. and ended them at 154. This looked as if it were the answer for her, but a year later she had gone up 23 lb. to 177. At the end of the second year she had lost 27 lb. and was back at 150. There were a few others who gained slightly but consistently during the entire two-year period.

This variety of experience emphasizes that overweight is an individual problem. All of these people had tried other methods of losing weight, but without success. It would be interesting to know whether their weight histories during the period of the study resembled previous experience.

A third point is that a number of persons were successful as long as the group gave them support. Some lost weight during the group sessions, but regained it before the end of the first year. If we recognize that motivation is an important factor in weight control, we must also recognize that many people do not possess sufficiently strong motivation, or are unable to develop it, so that they can carry on alone after a course of group therapy. For these, the group should perhaps be a continuing resource, to fill a need which cannot otherwise be met.

There are, of course, many theories about the group approach to weight control—perhaps as many as there are people who lead groups for that purpose. If we can avoid being dogmatic about method and adopt a reasonable attitude toward the measurement of achievement, we can learn much from the variety of groups now in existence. From a practical viewpoint, I think it is obvious that we will continue to deal with the obese in groups—whether in classes or clubs or industrial groups, or wherever. Perhaps a combination of techniques will ultimately prove to be the most successful method.

Many dietitians have already gained valuable experience in working with overweight persons, either individually or in groups. You have already learned that it is not enough to present the facts about weight reduction to obese patients and then allow them to go on their heedless way. You know well the necessity of understanding the personality and the emotional problems of the patient, and you realize the importance of giving him warmly personal professional consideration. As nutritionists and dietitians, then, you share an important responsibility in the prevention and treatment of obesity. More and more, you will be called upon to contribute your talents and energies to the solution of the most important nutritional problem in this country today.

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How Does a Cow Make Milk?

Under the Agricultural Research Program, Oak Ridge, radioactive tracers are being used to study this vital process in the hope of increasing milk production.

In reporting at the recent Southeastern Regional Meeting of the American Chemical Society, Willard J. Visek, R. A. Monroe, Professor Eric W. Swanson, and Dr. C. L. Comar pointed out that milk is formed by the mammary gland from materials in blood. They are trying to show how it is possible for the mammary gland to cause calcium to be concentrated fourteenfold in milk as compared to that in blood. They also hope to discover by what means this gland can not only concentrate the blood constituents in forming milk but also use these materials in the synthesis of new substances which are common to milk but not to blood.

Mr. Visek explained that "in periods of heavy production when minerals in the cow's diet are not sufficient to meet the demands, she uses the minerals in her skeleton to meet the additional requirement. and this process can go on until her bones become weak and break. What regulates this process and what can we do to aid the cow's metabolism so that her reproductive life is not impaired?

"Radiocalcium fed to cows in gelatin capsules has been found to appear in the blood stream in maximal concentration 24 hr. later and in the milk 37 to 40 hr. later. Intravenously injected radiocalcium disappears rapidly from the blood stream and is distributed all over the body in less than a minute after injection. Though calcium in blood exists in fractions, the radiocalcium reaches all of these fractions in equal concentrations almost instantaneously after injection or absorption from the gastrointestinal tract.

"Cows injected with radioactive calcium prior to giving birth to calves have stored large amounts of this radioactivity in their mammary gland for three weeks until milking began. A major portion of this injected radioactivity also was captured by the bones of the unborn calves.

"Additional studies have been conducted on the calcium which is lost from the cow's body just by normal wear and tear—'endogenous' loss. Though calcium has been known as a dietary essential since 1842, its endogenous loss has not been possible to determine without the imposition of extremely abnormal experimental conditions. It now can be done with radioisotopes under normal conditions regardless of diet or physiological state."

Exercise and Weight Control

Frequent Misconceptions[1]

JEAN MAYER, Ph.D., D.Sc., and FREDRICK J. STARE, Ph.D., M.D.

Department of Nutrition, Harvard School of Public Health, Boston

THREE general misconceptions on the relation of muscular exercise and development to weight control are frequently encountered. They are:

(a) Exercise requires relatively little caloric expenditure, and, therefore, increased physical activity is of no particular concern as an aid to weight reduction.

(b) An increase in the physical activity from whatever base level is automatically followed by an increase in appetite and food intake and may, therefore, actually impair reduction of weight.

(c) Body weight is always a reliable measure of degree of obesity, regardless of the degree of muscular development.

May we again state that *these three common statements are misconceptions*, as we shall now attempt to prove.

ENERGY EXPENDITURE IN EXERCISE

The first misconception, minimizing the caloric expenditure due to physical activity, should be avoided by anyone familiar with the Recommended Dietary Allowances of the National Research Council (1) or any similar table of requirements or allowances. The National Research Council allowances for men vary from 2400 to 4500 calories per day, depending on the level of activity. And, the figure of 4500 calories per day does not represent an upper limit. (Laborers, soldiers in the field, and athletes often require up to or even more than 6000 calories per day.)

In contrast to these comments, one frequently hears or reads such statements as the following: "The caloric equivalent of a pound of fat can only be matched by walking 36 hr., splitting wood for 7 hr., or playing volley ball for 11 hr." These unattainable extremes of physical activity ridicule the possibility of losing weight by exercise. One might answer that, while splitting wood for 7 consecutive hours would be difficult for anyone other than a Paul Bunyan, splitting wood for ½ hr. every day, by no means an impossible task for a healthy man, would add up to 7 hr. in a fortnight and, if it represented a regular practice, would represent the caloric equivalent of 26 lb. body fat in a year. A half hour of hand ball or squash a day would be equivalent to 16 lb. per year.

It seems more useful, however, simply to recall the measured cost of different types of physical exercise. All energy costs quoted here (2) were established for a "mean" man with a body surface of 1.77 sq. m. (this corresponds, for example, to a height of 172 cm. [5 ft. 7 in.] and a weight of 65 kg. [143 lb.]). Energy expenditure, and hence weight loss, would be greater in the case of a larger or heavier man.

For the "mean" man, then, examples of energy expenditure per hour *over that of sitting* are: walking (not running), 100 to 550 calories, depending on the speed; swimming, up to 685 calories per hour; climbing, up to 950 calories per hour; skiing, up to 950 calories per hour; skating, up to 685 calories per hour; and cycling, up to 585 calories per hour. These hourly energy expenditures above the resting level of sitting do not include peaks of activity reached in competition. Here caloric expenditures may approach 1300 calories per hour. A caloric expenditure of 500 to 600 calories per hour above the resting level represents a level of physical activity which can be endured by the average adult not in training for a period of 30 min. without undue discomfort. This rate of expenditure for 30 min. is the caloric equivalent of a piece of apple pie à la mode.

Exercise is an important aid to weight reduction but only if it is carried out frequently, consistently, and in moderation.

In most types of exercise, no heavy object is

[1] The studies from this laboratory on which parts of this paper are based were supported in part by grants-in-aid from the National Institute of Arthritis and Metabolism, National Institutes of Health, U. S. Public Health Service, Bethesda, Maryland; Nutrition Foundation, Inc., New York City; Kellogg Company, Battle Creek, Michigan; and the J. M. Kaplan Fund, Inc., New York City. Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 23, 1952.

moved other than the whole or parts of the body; therefore, the energy cost of exercise is proportional to body weight (3, 4). If excess body weight is so great that it impairs body movement, this relationship will not, of course, strictly apply (5).

If the energy cost of exercise is approximately proportional to body weight, it follows that the overweight person will require more energy, and hence burn up more body tissue, for the *same amount* of exercise than the person of desirable weight. Twenty per cent overweight will increase the cost of walking, tennis playing, golfing, and so on by 20 per cent. This represents a much greater proportional increase than that introduced by the increase in basal metabolism due to excess weight, which is proportional only to a fractional power of the body weight (6, 7).

Thus, any increase of the caloric intake above the balance level in a physically active individual will cause only a modest increase in weight because of the energy cost of moving the extra poundage. On the other hand, in a sedentary individual, less energy will be expended moving the extra weight and hence weight gain will be more rapid and more pronounced. A sedentary person will, therefore, be more exposed to the danger of overweight to a much greater extent than an individual who makes a practice of daily—or at least, frequent—physical exercise.

It is amusing in this connection to mention that, in the hereditary obesity-diabetes syndrome of mice that is under study in our laboratory (8, 9), the obese members of the strain who carry the "waltzing" gene and are in nearly constant rotary movement in their cages show a weight gain only about 30 per cent more than the non-obese mice, rather than 200 or 300 per cent shown by the sedentary obese mice. The activity level of the sedentary obese mice is 50 to 100 times less than that of the non-obese animals (10).

EXERCISE AND APPETITE

A second frequent misconception concerning the value of exercise in weight reduction is that an increase in physical activity always causes an increase in appetite and food intake which equals or is greater in energy value than that of the energy cost of the exercise.

That appetite generally follows physical activity is true and explains why the weight of most adults is relatively constant. But, this adjustment of caloric intake to caloric expenditure has certain limitations: (a) the mechanism which regulates food intake must function normally; (b) energy expenditure must not be raised above a certain (upper) limiting value; and (c) energy expenditure must not be below a certain (minimal) limiting value.

The first limitation—dependence on regulation of food intake—is almost self-evident. It is paradoxical (although frequently done) in considering an overweight individual, that is, one whose appetite is not adjusted to his energy requirements, to postulate that, if his energy requirement is increased by exercise, his appetite will automatically follow suit to the same extent in energy.

The second limitation is suggested by animal studies. Studies in our own laboratory, as yet unpublished, show that adult rats may be exercised to a moderate degree without any increase in food consumption. On the other hand, it is well known that experimental animals can be exercised to the point where they will lose weight, even if fed *ad libitum*. As far as man is concerned, farm workers at the peak of the harvest season have been repeatedly observed to lose weight in spite of extremes of caloric consumption. The weight loss must be made up during periods of decreased activity. Similar observations have been made in soldiers under strenuous field conditions.

At the opposite end of the caloric scale, a third limitation is due to the fact that a decrease in appetite does not always follow a decrease in physical activity. Experiments (11) have demonstrated that rabbits, when restricted in their activity by confinement in a small cage, will consume more calories than they require and accumulate fat. The excess food consumed is characteristic of the strain; hence an hereditary factor is involved here. The same phenomenon has been strikingly illustrated with rats made obese by immobilization (12). Progressive decrease of the activity of the rat also showed that a level is reached under which no further decrease of caloric intake is noticeable (13). In the light of the glucostatic theory of the regulation of food intake (14, 15), this may correspond to the point where further decrease of an already-low level of activity has no further effect on blood glucose levels. The glucostatic theory of the regulation of appetite, proposed by our laboratory as a result of studies carried out on rats, mice, and man, postulates an appetite-regulating center in the hypothalamus which responds to variations of the "effective level" of available blood glucose.

Greene (16) has studied more than two hundred overweight patients in whom the beginning of obesity could be traced directly to a sudden decrease in activity. This suggests that if activity is depressed below a certain level, probably characteristic of each individual, food intake does not decrease to the same extent from an energy viewpoint. The frequent observation of increase in weight of individuals discharged from active military units tends to confirm Greene's observations. Thus, even if and when heavy physical exercise increases food intake in the overweight individual, it does not necessarily follow that a marked decrease in exercise will depress the appetite below the level corresponding to moderate activity.

While no one questions the fact that overweight is a manifestation of imbalance between caloric intake and energy expenditure, it does not necessarily follow that the etiologic element in the imbalance is excessive intake. It could in some cases be insufficient energy expenditure, i.e., exercise.

The estimate of caloric intake is always difficult (17). In obese patients the difficulties are multiplied (18). Yet only careful determination of both caloric intake and activity could establish, for a given individual, the levels that will result in exact maintenance of weight. A slight but consistent variation in either would result in a change of weight. For example, Conn has shown (19) that for a sedentary individual weighing 75 kg. (165 lb.), a dietary excess of only 80 calories per day will cause an increase of 6 kg. (13 lb.) in five years. Eighty calories also represents the approximate energy cost of walking about 1 mi. at moderate speed for a man of this weight. Thus, one is led to wonder whether there is not a direct relationship between the improvements in transportation in this country and the prevalence of overweight. Certainly, "over-transportation" is related to "overconsumption" in mild, "middle-age" overweight. Energy balance can still be re-established by decreasing caloric intake, but at a cost in gastronomic discomfort that a moderate and regular increase in activity would overcome.

EXERCISE, BODY COMPOSITION, AND WEIGHT

The third aspect of the relation of exercise to weight control concerns the use of changes of body weight as a criterion of fat accumulation or loss, independently of the status of the individual as regards muscular development and exercise. The line of the average college football team contains a number of twenty-year-old boys, averaging 5 ft. 10 in. in height and 200 lb. in weight. According to any tables of desirable weights, these boys would be overweight, and some would be obese. Yet a larger proportion than average of the body tissues of these football players has been shown to be muscle rather than fat (20).

It is likely that when playing is discontinued, muscle tissue will be replaced by fat tissue, and even though weight remains stationary or decreases slightly, the "true" degree of obesity (based on fat content) will increase. A gram of tissue protein is the equivalent of about 5 calories, and its deposition is accompanied by about 3 or 4 gm. water. A gram of tissue fat represents 9 calories and is not accompanied by water. Thus, it is apparent that fat tissue represents gram for gram or pound for pound up to seven or eight times more calories than muscle tissue (21).

It has been repeatedly shown, in particular by Brožek and Keys (22, 23), that weight alone is not an accurate comparison of different individuals from the point of view of fat content, unless the individuals are grossly obese or emaciated or have been at the same approximate exercise level. When a single individual is followed, weight variations will be an index of the decrease or increase of his fat stores only if his level of physical activity has remained fairly constant. Brožek and Keys (24) found that men fifty years of age had a fat content almost double that of twenty-two-year-old men of the same height and weight.

The more widespread use of various devices for the measurement of soft tissues and skinfold thickness (25–27) will no doubt permit the extension of the procedures of classifying individuals simultaneously as overweight or underweight and as lean or fat. This should be a helpful adjunct in weight reduction programs, where a main interest is in reduction of fat tissue.

CONCLUSION

The intent of this discussion has been to point out three common fallacies concerning exercise and weight control. In many cases of mild overweight and in all cases of obesity, only rigid adherence to caloric restriction will permit successful reduction. Following the weight of the patient is, in most cases, the easiest and most practical way to follow fat accumulation or loss. An increase in physical activity may be impossible in the frequent situations where overweight is accompanied by an already dangerously increased load on the cardiovascular system.

But, when all these limitations have been acknowledged, it still remains that exercise is the only practical way to increase energy expenditure; that a given level of exercise in a person gaining weight, or already overweight, will require more energy, because of the extra weight to move. Hence, an increase in caloric intake tends to produce a self-limiting weight increase if an active exercise level is maintained. And finally, a decrease in physical activity is not necessarily accompanied by a decreased appetite, nor is a moderate increase in exercise accompanied by an increase in appetite.

Strenuous exercise once a year during a vacation, or even weekly, is of no aid in weight reduction and may be harmful to the vascular system, but moderate, frequent, and consistent exercise is a very helpful aid in weight reduction.

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Materials Specifications for Food Service Equipment

In its recent booklet on standards for *Soda Fountain and Luncheonette Equipment*, the National Sanitation Foundation listed the following general specifications for *materials* which are applicable to any food service installation:

Only such materials shall be used in the construction of equipment as will withstand wear, penetration by vermin, and the corrosive action of foods, cleaning compounds, and other elements found in the use environment; and that portion which is in contact with food shall be of non-toxic material.

Where so used, materials shall be of such nature, weight, or gauge and so applied as to be resistant to change as by denting, buckling, chipping, and fitting.

SOLDER in contact with food shall contain as small an amount of antimony, cadmium, lead, zinc, or other toxic materials as can practicably be used and still accomplish its purpose.

WELDING: When welded seams are used, the weld area and deposited weld metal shall be equally as corrosion-resistant as the parent material.

WOOD CUTTING BOARDS: If applied, shall be of hard maple or better.

BREAKER STRIPS AND LIDS: Shall be of non-absorbent, shatter- and chip-proof material.

SPLASH BOARDS: Shall be stainless steel or monel metal.

DRAWERS: In food service equipment shall be galvaneal or better. If drawers are located within a cooling chamber that can create condensation, corrosion resistant metal shall be used.

LEGS AND FEET: Shall be readily cleanable metal.

PLASTIC: If used for lids or other surfaces with which moist food is likely to come in contact shall be free of formaldehyde or other substances which may be leached.

Installation specifications as outlined in this booklet will appear in an early issue of the JOURNAL.

To Be or Not to Be—Fat

(and How to Tell if You Are)[1]

JOSEF BROŽEK, Ph.D.

The Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis

HEIGHT-WEIGHT tables used for calculating the excess of an individual's body weight above the "standard" for age, sex, and height suffer from a variety of limitations. For one, most of the currently used tables of average weights for men and women of different statures at various ages go back to the 1912 "medico-actuarial mortality investigations." There are indications, especially as far as younger women are concerned, that the tabular values are too high for today's population. Different tables, using the same figures, differ in their specifications with reference to shoes and clothing. Another serious limitation of the height-weight tables is that they do not consider the skeletal "body frame."

MORTALITY AMONG THE OBESE

In spite of these and other objections to the application of the height-weight tables to individuals as a criterion of "obesity," marked overweight has been shown to be undesirable (1) as it is associated with the tendency toward development of a variety of serious physical impairments, such as heart disease and diabetes. However, even more convincing evidence of the damaging effects of overweight is provided by the mortality data collected by the insurance companies. The studies reported within the last twenty years show a consistently higher mortality among overweight persons.

A new mortality study, based on the experience of the Metropolitan Life Insurance Company, involved 25,998 men and 24,901 women. The applicants for insurance were between twenty and sixty years of age at the time of the examination. They were insured between 1925 and 1934 and were followed until 1950. During this period there occurred 3,713 deaths among men, 2,687 among women. The applicants were first-class risks in all other respects than overweight. The mortality of these overweight persons is analyzed and compared with the mortality experience on persons accepted for standard insurance in Table 1.

This study tells the familiar story of substantially higher death rates occurring among overweight persons. Degenerative diseases of the heart, the arteries, and the kidneys account for a large part of the extra deaths. The incidence of deaths due to diabetes was three times that normally "expected." Mortality from cirrhosis of the liver and gallbladder disease and hazards of pregnancy were also in excess of the normal.

TABLE 1

Mortality of overweight persons (1)

CLASSIFICATION	PERCENTAGE OF DEATHS COMPARED TO "STANDARD RISKS"	
	Men	Women
Degree of overweight		
Moderate	142	142
Marked	179	161
Age at issue of insurance		
20–29 years	180	134
30–39 years	169	152
40–49 years	152	150
50–64 years	131	138
All ages	150	147

Insurance statistics, however, are concerned with *man in mass*. In this approach, the individual necessarily loses his identity. Yet the clinician and you (and I) personally are concerned with *individuals*: Are you "obese" and should you reduce? Here the height-weight tables can serve only as a crutch, not as a valid criterion. This is so even when the skeletal framework of the individual is taken into account, as by Pryor (2) who used the width of the thorax and of the pelvis (bi-iliac diameter) as indicators of body width. The Metropolitan Life Insurance Company tables of "ideal" weight (3, 4) give values for small, medium, and large frames but do not provide anthropometric criteria for classifying individuals according to the body frame. The specifications for taking height ("with shoes") and weight ("as ordinarily dressed") induce considerable further error into their application to individual patients.

[1] The investigations on which this paper is partly based were supported by a research grant H-10 (C6) from the National Heart Institute, National Institutes of Health, U. S. Public Health Service, Bethesda, Maryland.

OBESITY DEFINED

For purposes of individual diagnosis, obesity must be defined as an excess of fat, not simply of body weight. It should be evaluated by more direct methods, keeping in mind the age and sex of the individual. A variety of techniques is available for the analysis of the living body into its morphologic or biochemical constituents, including body fat (5). In this Laboratory the specific gravity technique (6) and the measurement of skinfolds have been applied in a number of studies and for a variety of purposes.

The need for thinking and calculating in terms of individual components of body weight became very clear in connection with the study of the effects of prolonged caloric restriction, followed by a period of nutritional rehabilitation (7). In four caloric groups, with an average daily intake of 2378, 2692, 3123, and 3494 calories, there were striking differences in the amount of fat regained after twelve weeks of refeeding (17.0, 42.5, 45.9, and 94.8 per cent of the semi-starvation loss) while the recovery of gross body weight amounted to 21.0, 29.6, 40.7, and 57.2 per cent of the semistarvation loss. Fat accounted for 32.6, 51.7, 51.0 and 66.7 per cent of the weight gain, respectively.

In a long-term study on factors involved in the development of "degenerative" diseases of the heart and the blood vessels, the amount of fat measured during the time the subject is clinically fully "normal" is one of the many characteristics which will be related to the subsequent incidence and severity of cardiovascular symptoms.

At the outset, there was the more immediate task of setting up "norms" which can be used for placing adults along the leanness-fatness continuum (8). It was found that the individuals in the same category of relative weight but of different ages differ markedly in body composition. This indicates severe limitations of standard and relative weight as criteria of obesity (9). Because the fat content of the body tends to change with age, the age trends were studied, first in men (10) and more recently in women. The latter study will document, in quantitative terms, the well-known sex differences in the amount of deposited fat, showing the "soft roundness" of the female body to be reflected in considerably higher fat content throughout adulthood.

SUMMARY

To summarize, the insurance statistics answer a firm "No" to the question of "To be or not to be—fat." Keeping down the weight (and the size of the fat depots) seems to be very good "insurance." There may be a stout octogenarian among your acquaintances but, in general, individuals who are less well "padded" retain their health better and stay around longer.

In reference to the second question incorporated in the subtitle of this paper, the relative amount of fat in the body is the basis for the answer. While skinfold measurement is a very useful tool, especially for nutritional surveys, and represents a better index of "fatness" than the deviation from a tabular weight standard, an evaluation of the total fat content is needed for individual diagnosis. At the present time, we can determine the individual's leanness-fatness in terms of the deviation of his body fat content from the average for sex and age. However, only long-term follow-up morbidity and mortality studies can provide the answer about the *optimal* amount of body fat.

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Bacterial Growth in Frozen Ground Meats

Contrary to common belief, growth rate of bacteria in defrosted ground meat was slightly slower than in unfrozen control samples. Freezing and thawing in meat also prolonged the lag period that precedes the beginning of active growth. These results were obtained in studies done by the Bureau of Animal Industry, U. S. Department of Agriculture, in which meat samples were inoculated with a gram-negative psychrophilic bacterium associated with meat spoilage. However, when organisms of sanitary significance were used, such as *Micrococcus pyogenes*, *Salmonella anatum*, *Salmonella choleraesuis*, and *Escherichia coli*, no growth was observable in samples that had been frozen, thawed, and held in a refrigerator.

Dietary Factors in Treating Heart Disease[1]

CARLETON B. CHAPMAN, M.D.

Associate Professor, Division of Internal Medicine, The Medical School, University of Minnesota, Minneapolis

ALTHOUGH modern dietetics plays an important role in the treatment of patients with many different diseases, in no area is it more important than in the treatment of cardiovascular disease. There is general agreement on some of the principles involved, and they, therefore, need little or no discussion. Others, however, are more controversial and the elements of the controversy should be abundantly aired. The dissenting vote, we should note, is not necessarily a destructive one.

OBESITY IN CARDIAC DISEASE

Few will disagree that *obesity* is one of the worst enemies of the patient with cardiovascular disease. In the obese patient with cardiac disease, weight reduction is a physiologic necessity. His bodily musculature must do a great deal of work to propel his bulk, and for the muscles to accomplish more physical work means that more blood must flow to them. This inevitably means increased work for the heart which, being diseased, can ill afford to have an additional load placed upon it. From the circulatory point of view, such a patient is somewhat comparable to a non-obese patient with hyperthyroidism, whose heart is whipped up to a frenzied state of activity because the thyroid gland is pouring out its hormone in abnormally high amounts. Even though at the outset of the disease the heart is normal, it cannot withstand such outrageous demands indefinitely. The excess load can be eliminated by removal of the thyroid gland. In the case of the obese patient with cardiac disease, the load can be diminished, if not abolished, by weight reduction. Dyspnea on exertion may disappear entirely as a result; not infrequently angina pectoris can be overcome or its severity much reduced by the same means. Intractable cardiac failure, with pronounced edema of the extremities, sometimes becomes amenable to treatment if weight reduction can be effected.

These facts are self-evident and invoke little disagreement among cardiologists. The main barrier to weight reduction is usually the patient himself. He can often think up a thousand reasons why he cannot or should not reduce. One of the most common is the fear that his health will be impaired, not improved, if he reduces drastically. In the lay mind, it is axiomatic that a healthy person must be plump and that a thin one, by definition, is unhealthy. It seems to be generally believed that when one gains weight he puts on about as much muscle as fat and, conversely, when he reduces, he loses muscle tissue as well as fat.

These questions were not approachable scientifically until a method for estimating, in the living body, the relative amounts of muscle and of fat (1) was developed. It has been found that the normal fat in the human body runs up to 38.4 per cent of the total body weight, averaging about 15 per cent (2). Obese people invariably are closer to the extreme upper limit than to the average. Keys and co-workers (3) have found that in people who are purposely overfed, 80 per cent of the resulting weight gain is due to fat deposition, only 20 per cent being attributable to increase in muscle tissue. Similarly, when tissue is lost through planned weight reduction, the loss is due mainly to reduction in the amount of fat. What little muscle tissue is lost is no more than one would anticipate; after all, if the body weight goes down, less muscle is required to move it. Serious loss of non-fatty tissue can easily be avoided if the reducing diet is properly planned.

There is, then, no reason for patients to expect deleterious effects from therapeutic weight reduction, and we now have a few scientific facts to refute their notions about it. We are still a long way from devising an easy way to induce patients to accept caloric restriction but, in any case, we are quite safe in maintaining that no patient with cardiovascular disease has any business being overweight.

CHOLESTEROL CONTROVERSY

Although weight reduction is viewed with reserve and even antagonism by the public, certain other

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 24, 1952.

dietary measures have received enthusiastic acceptance. At the moment, the low-fat, low-cholesterol diet holds the public eye, so much so that other more valid dietary measures have been pushed into relative obscurity. An enthusiastic attack on the causes and prevention of atherosclerosis, and especially of coronary atherosclerosis, is undeniably appropriate at the present time. But how far does the evidence allow us to go in denouncing cholesterol as the *cause* of the atherosclerosis?

Several lines of evidence are usually marshalled in support of the contention. One is the well established fact that cholesterol is found in atheromatous lesions with regularity. These lesions, then, lead ultimately to partial occlusion of the lumen of the affected artery and serve as sites on which clots may be deposited, resulting in complete blocking of the vessel. One authority (4) believes that cholesterol is repeatedly deposited in, and resorbed from, the arterial wall, that the substance is irritating to the tissue, and that ultimately irreversible damage results. According to this view, cholesterol itself causes all this damage, although the presence of secondary factors is also recognized. One difficulty, however, is the fact that cholesterol is often deposited in areas of tissue damage as, for example, in certain tuberculous lesions. In such a situation, tissue damage occurs first, the deposition of cholesterol being a secondary, probably passive, phenomenon. In the arteries themselves, it may well be that some as yet unidentified traumatic agent first damages the wall, cholesterol being deposited later and entirely nonspecifically.

Another line of evidence for the view that cholesterol causes atherosclerosis is provided by feeding experiments. In these, rapid development of atherosclerosis is induced in rabbits and chickens by feeding the animals (which are normally vegetarians) enormous amounts of cholesterol. The experiments do not work in normal carnivorous animals, although they may yield positive results if the animals are first made myxedematous. In any case, it is very treacherous reasoning to extend these findings in herbivorous animals to omnivorous human beings.

Clinical experience with human beings provides another support for the view that cholesterol causes atherosclerosis and as such, is more credible than either of the other two lines. Clinicians have observed for many years that patients with myxedema and diabetes develop severe atherosclerosis much earlier than do normal persons. Although, with respect to myxedema at least, there may be some question about this (5), precocious atherosclerosis is certainly a major hazard to many diabetic patients. In both these diseases, the serum cholesterol level tends to be high. These facts, then, certainly suggest that there is a relation between cholesterol and atherosclerosis, but they do not establish it as cause-and-effect.

Finally there seems to be some reason to believe that atherosclerosis is infrequent in countries where diets are singularly low in animal fat and cholesterol. There are no very extensive bodies of data to support this alleged fact, and it should still be viewed with reserve.

VALUE OF LOW-CHOLESTEROL DIETS

We must conclude that cholesterol is in some way related to atherosclerosis but may not be its cause. This, of course, does not necessarily mean that limitation of fat and cholesterol intake is therapeutically valueless. Cholesterol deposition in arterial walls, whether primary or secondary, is obviously not a desirable phenomenon, and any practical measure that will prevent or postpone it is therapeutically justifiable. The use of diets for this purpose is now widespread. It has been found that such diets cause definite lowering of serum cholesterol levels and of the circulating lipoid particles (containing cholesterol) that Gofman and associates (6) consider specifically related to atherosclerosis. Such diets must be very low in fat, both animal and vegetable; it is not enough to eliminate cholesterol alone. Since palatability depends in some measure on fat content, the diets are not always acceptable to patients. The sharp reduction in fat intake, however, reduces one important source of calories so that most patients receiving a low-fat, low-cholesterol diet lose weight.

Proof that such diets are of benefit to the patient who already has atherosclerosis is grossly inadequate. It has *not* been demonstrated in human beings that low-fat, low-cholesterol diets cause atheromatous lesions to regress, although they may do so in fowls, previously fed for some time on high-fat, high-cholesterol diets. It is suggested by Morrison (7) that the mortality rate in human beings with coronary atherosclerosis is reduced by the use of low-fat, low-cholesterol diets. The figures cited in support of this contention, however, are not convincing and, according to the author, are not amenable to statistical treatment. To obtain absolute proof for such a view would, of course, be a Herculean undertaking, but at present the view is a hope, not a scientific fact. It is also suggested by Morrison, among others, that low-fat, low-cholesterol diets may provide relief to patients with angina pectoris, the inference being that atheromatous lesions in the coronary vessels of such patients actually grow smaller when the serum cholesterol levels fall. It seems more likely, however, that such relief as may occur is due to weight loss, rather than lowering of the serum cholesterol.

The use of diets designed to keep serum cholesterol levels down may well prove to be more sensible as a preventive measure than as a means of treating patients who already have atherosclerosis. If this turns out to be the case, it will mean that those who wish to stave off the evil day when atherosclerosis begins

to make itself felt must alter their diets very early in life. Proof that the life span can be extended by controlling the cholesterol intake may well lead to a drastic alteration of our national diet. This, however, is for the future. For the moment we should regard the cholesterol question and its therapeutic implications critically, realizing that enthusiasm and hopes seem to be running well ahead of the evidence but carefully avoiding a dogmatically negative view toward the matter.

LOW-SODIUM DIETS

Finally, some mention should be made of *low-sodium diets* in cardiovascular therapeutics. Their position in the management of congestive heart failure is virtually unchallenged, although it is now recognized that the combination of mercurial diuretics and fluid restriction with marked curtailment of sodium intake is dangerous.

The position of low-sodium diets generally, and the rice-fruit diet in particular, in the treatment of essential hypertension is less well established. There is no doubt that strict sodium limitation causes lowering of the blood pressure in some hypertensive patients, but it is difficult or impossible to maintain the depressor effect over long periods of time by such means. Here again, the palatability factor looms large as a barrier to success. The depressor effect of such diets depends on very strict limitation of sodium intake, something that is extremely difficult, and probably dangerous, to maintain for more than a few weeks at a time. This, more than any other reason, is responsible for the waning popularity of the rice-fruit diet. In its unmodified form, it is unacceptable to most patients for long periods of time.

There are other objections to it as well. Under controlled conditions in our hands, it amounted to a semistarvation regimen (8). It invariably caused reduction in body weight due to loss of body tissue, it caused a marked fall in serum cholesterol levels, and it probably induced a negative nitrogen balance, at least initially. In other words, we found it be to an excellent anti-obesity measure for short periods of time. Our present belief is that the rice-fruit diet is one of the several available methods of causing temporary reduction in blood pressure in hypertensive patients and that its effective feature is its low sodium content, not its low fat or low protein.

SUMMARY

Reduction in body weight is, and is likely to remain, the most urgent dietotherapeutic measure in most obese patients with cardiovascular disease. The use of low-fat, low-cholesterol diets in treating patients with coronary sclerosis is a highly controversial matter. It seems unlikely, however, that the measure is capable of reversing the trend once coronary sclerosis is established. It may prove to have some value as a preventive measure.

Low-sodium diets are of value in the treatment of congestive heart failure but may, under some circumstances, be dangerous. The rice-fruit diet is an effective depressor measure for short periods of time in some patients with essential hypertension. In its unmodified form, however, it is impractical for use over months or years.

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Trichinae Destroyed by Freezing

Trichinae in pork can be destroyed in home freezers, if held at or near −20°F. for six to seven days, depending on its weight. Although freezer storage of pork is not a substitute for cooking, it may serve as an extra safeguard against possible infection.

Three large hams weighing between 40 and 49 lb. and three pork shoulders weighing between 30 and 35 lb. taken from hogs experimentally infected with trichinae were chilled at a temperature of 35°F. for 24 hr. The meat was then placed in a freezer at a temperature of −18° to −20°F. and held for seven days. Four days were required to reduce the temperature of the meat to that of the freezer. Small pieces of the meat were examined at various intervals. After seven days' storage, no live trichinae were found.

Another similar test involved a 14-lb. ham and a 13-lb. shoulder. The relatively light pieces of pork reached the temperature of the freezer after 48 hr. storage, and no trichinae capable of producing infection in rats were present after six days' storage.—*From Report of the Chief of the Bureau of Animal Industry, Agricultural Research Administration, 1952.*

Infant Feeding in the American Colonies[1]

FELISA J. BRACKEN
Department of Public Welfare, Baltimore, Maryland

OUR American colonists were too busy to collect and publish accurate vital statistics, but it is known that infant mortality was high—in fact, higher than in England at that time, where in 1762 and 1763, half of the children under two years of age died and about 70 per cent of those under five (1). That babies did survive is a marvel.

A glance at the conditions under which people lived in those days, and the food available in colonial times is revealing. In 1609 and 1610, there was such extreme famine and distress that this period was known as the "Starving Time." When Captain John Smith departed for England at that time, he left 500 persons in the colonies, but, according to George Percy (2), "within six months, there remained not above sixty Men, Women, and Children; and these most poor and miserable Creatures, preserved, for the most part, by Roots, Herbs, Acorns, Walnuts, Berries, and now and then a little Fish."

In 1611, beriberi and scurvy were found in the colonies, but with the clearing of the fields and the laying out of plantations, the problem ceased to be acute and is not mentioned again in the annals of the Virginia colonies until 1622.

Early colonial life was hard, even for adults. How difficult it must have been for children! A few bright spots in colonial history tell of summer landings in the New World when fruit and berries were abundant. Some travelers, however, ate too greedily of the fresh fruits and made themselves ill (2) after long crossings when food frequently consisted only of barley and water. The great problem, of course, for the settlers was the clearing of land and building of shelter. Once this had been accomplished, the colonies began to prosper.

The first year of life at Plymouth was a bitter struggle for existence. The pages of Governor Winthrop's *Journal* tell a sad story of the settlers of Massachusetts Bay. They had little to eat and poor shelter from the cold in winter (3). The story of the first Thanksgiving is well known—that it was a day set aside to give thanks for a plentiful harvest after an extremely lean year. Even in well established colonies, life was rigorous, and equipment and utensils were scarce. Indian raids and captures increased the hardships (4). Stories such as those left by the settlers of Deerfield, Massachusetts, give us vivid pictures of the precarious existence endured by colonial women and young children (5).

There was much game in the early colonial days, if there was a hunter in the family to procure it. There was an abundance of fish in streams, and along the coast, oysters and lobsters were plentiful (6).

Cereal foods abounded, especially corn. Wheat did not at first ripen well, although there was rye. In and around Charleston (7), rice was used. Corn was frequently beaten, boiled in porridge, then eaten hot or cold with milk and butter.

The colonists planted vegetables, including quantities of potatoes and other root vegetables, peas, squash, and pumpkin. Native and domestic fruits were plentiful, and there were many berries. Wild grapes grew in abundance, and raisins were popular with children. Apple trees were planted at once after land was cleared, and orchards flourished in Maryland twenty years after the settlement of the colonies. Apples were used the year round, dried ones substituting for the fresh during off seasons. There were pears and quinces in New England (6), and oranges were grown in South Carolina and in East Florida (7). They were not widely used, however, because they were probably small and sour. Tomatoes were not considered edible.

As the colonies grew, game became less plentiful, but in later colonial times milk was available in large quantities and sold for a penny a quart. Butter was scarce in the seventeenth century, and although there were few churns, the earliest colonists had equipment for making cheese. Later, by the eighteenth century, churns were available.

[1] First Lydia J. Roberts Award Essay, read in part at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 23, 1952. This Award is made possible by a grant from Gerber Products Company, Fremont, Michigan, for the purpose of encouraging historical study of nutrition. Presentation of the Award was made at the Annual Banquet of the Association on October 24, 1952, by Lillian Storms Coover, Ph.D. (see JOURNAL, page 1152, December 1952).

Sugar was scarce, but there was wild honey, maple sugar, molasses, apple molasses, apple butter, and cider (6).

These foods were available only in certain seasons and in variety to the more prosperous households. Many times people were hungry. Mrs. Mary Rowlandson wrote (8) that during her captivity by the Indians when the food supply ran low, she ate horse flesh. Invited to have dinner with King Phillip during this time, they had pancakes as big as two fingers, made of parched wheat, beaten and fried in bear's grease. She was so hungry these tasted very good.

COLONIAL EATING HABITS

Colonial meals were very simple. Women were busy with spinning, weaving, soap and candle making, and time-consuming work, such as the making of sausage, pickling, preserving, and canning.

Early colonial recipes for meat give directions to "Y-mynce it, smyte them on gobbets, hew them on gobbets, chop on gobbets, hew small, dyce them, skern them to dyce, kerf it to dyce, grind all to dust, smyte on peces, parcel-hem, hew small on mosselyen, hack them small, cut them on culpons." Meats were dried, salted, soused, pickled, and smoked. Many spices and herbs were used. Hashes, ragouts, thick stews, and soups with chopped vegetables and meats were common, as were "hotch-pots." Meals were frequently of the "one pot" type, cooked in vessels which could be hung over the hearth fire. Vegetables were not cooked separately, although some families had separate potato boilers. These were iron cages which could be filled with potatoes and lowered into the cooking pot which might contain other food (6).

Some people lived very frugally. Thomas Jefferson wrote (9) of the tobacco farmers of Virginia growing very little food, with the result that both men and animals were ill fed, and many babies starved.

Ministers, especially, lived on very little money and frequently had large families. It was considered an honor that a poorly paid minister brought his family up well. Ministers frequently reported bread and milk for breakfast and supper. Sometimes the supper varied as follows: stewed pumpkin and milk, milk and baked apples, milk and berries. Sweetened cider diluted with water was used in winter when milk was scarce. Sometimes bread was soaked in this mixture, and it is reported that children were very fond of this (6).

A whole family customarily ate from a single square wooden trencher in those days. In fact, a Connecticut settler, a deacon who made a round trencher for each of his children, was considered extravagant by his neighbors (6).

INFANT FEEDING

Popular practice in infant feeding did not, in colonial times, keep pace with the latest medical practices as it does today. The colonists followed, as nearly as they could, common practices of the continent from which they came, but communication was slow. The physicians in early colonial times were educated in Europe or were apprentices to physicians who had received training there.

Locke's "Thoughts on Education" (10) published in 1690 in England found many readers and ardent followers in the new world (3, 11). He advised that "Flesh should be forborn as long as the boy was in Coats, or at least until he was two or three Years old." For breakfast and supper, he recommended milk, milk pottage, water gruel, flummery, and similar "spoon meat," or brown bread with cheese. Between meals a child might have dry bread and small beer, warm. A child should seldom taste wine or strong drink. Locke cautioned against letting children eat melons, peaches, plums, or grapes, but berries, currants, cherries, ripe pears, and apples, the latter especially after October, he considered healthful. Locke did not believe children should be fed at regular times each day because they would then be uncomfortable at these times, and it might not always be convenient to feed them. He recommended shifting the meal hour slightly each day.

A half century later in 1748, William Cadogan wrote "An Essay upon Nursing and Management of Children from Their Birth to Three Years of Age" (1, 12). This paper marked a real advance over the customs of the past. He advocated that infants be put to the breast 6 or 7 hr. after delivery and be given no other feedings. Previously it had been common practice to cram butter, sugar, oil, panada, caudle, or "other unwholesome mess" down a newborn infant's throat. He urged mothers to nurse their children because the nursed child is "quiet, in good humour, ever playing, laughing or sleeping."

Infant feeding in the eighteenth century was a controversial subject. Some physicians preferred the use of animal milk to human milk (13), and some objected to milk in any form and recommended pap or panada entirely, made without milk. These beliefs, in turn, were refuted by prominent physicians who praised human milk.

Hamilton's Theories

Alexander Hamilton, the Annapolis physician, who lived from 1739 to 1802 (14), had a large practice among the wealthy families and supervised the education of others in his profession. He gave clear concise directions for feeding infants, and much of what he wrote about infant feeding reads like contemporary literature. He said (15) that the mother's milk was the best for the infant. He admitted that infants have thrived when fed on some other food, but this only showed that "powers implanted in the human constitution sometimes overcome even the dangerous effects of inconsiderate prejudice."

Hamilton stressed the fact that important ad-

vantages result from nursing, both to the mother and the child. "It has been improperly imagined, that all Mothers ought to be Nurses. By this opinion many children have been destroyed, and a greater number have only lived to regret their existence; the weakness of their frames having made them incapable of feeling those pleasures which originate from good health." He felt that women with hereditary disease should not nurse their children. Their babies should be sent to the country to be nursed by healthy wet nurses and the nursing period of these children should be prolonged.

He advised that the child be put to the breast as soon after birth as the condition of the mother would allow, because this helped, better than any other means, to rid the child of the black viscid substance contained by the intestines. He pointed out that it did less harm for this substance to remain in the intestines some hours after birth than to resort to "the pernicious practice of giving children purging medicines," which was common in those days. He advised that plain sirup or a solution of manna be given when "the Milk of the nurse is not found to answer the purpose."

He was an advocate of scheduling somewhat comparable to what we call "demand feeding" today, and pointed out that experience has proved it difficult to allow the child to suck only at stated periods. He felt the practice had bad effects, and said, "Although those children are most healthy and thriving who are least restricted, and who are permitted to take the breast at pleasure; yet every woman should avoid becoming the slave of her child as many unguardedly do. The infant ought therefore never be allowed to sleep at the breast, nor accustomed constantly to overload the stomach by sucking till vomiting ensues."

Hamilton commented on the practice of giving "spoon meat" to infants a few hours after birth, "a practice which seldom fails to occasion sore mouth, violent bowel complaints, etc. and which therefore should never be encouraged, notwithstanding the arguments of the dry nurses." He was violently opposed to giving infants spirits in the form of toddy. "Such liquors, however diluted, applied to their tender digestive organs will unavoidably destroy or impair their functions, and may lay the foundation for a train of the most dangerous complaints. It may indeed be urged in favour of this horrid unnatural practice that many children are accustomed to weak toddy from a few days after birth, and that they continue to thrive uninterruptedly. But such arguments only tend to prove, that the vigour of these children's constitution is so great as to resist the usual effects of strong liquor" (15).

Hugh Smith's Principles

Many of the practices followed in colonial days we learn by negative implications from remarks. Hugh Smith in 1792 wrote (16) of a mother who protested when he advised limitation of the amount of milk during the first two weeks of life. She said, "Allow a child only a pint of milk in a day! Why it would eat two quarts of pap, and still cry for more." Smith observed, "Surely it is wrong to put a large boat full of pap into their little mouths, suffering them to swallow the whole of it in the space of a minute; and then perhaps, from their cries, to ply them with a second which is no sooner down than it is thrown up again." He wrote in the days when the laity considered that no child was doing well unless continually "puking."

In his "Letters to Married Women on Nursing and Management of Children" (16), he told mothers not to leave an infant at the breast all night, to regulate the feeding times, and to give no food but milk until teeth appear. He disapproved of pap and commented on having seen fat children who were not healthy. "Fat is the disease which renders [the] constitution feeble." Suitable animal foods were broths, jellies, and the "gravy, which runs out of meat upon cutting it" mixed with an equal part of warm water and a little salt. He mentioned the fear people had of giving children salt because of scurvy and denied that salt had anything to do with it. He did not approve salt meats for children, however, because they were hard.

The passions and temperament of the mother were supposed to affect the child she nursed (quite a modern concept in the light of new psychiatric knowledge), and certain foods she ate were believed to produce wind, colic, and so on in the infant. General Williams blamed the slow recovery from smallpox by his infant son (17) on the way his wife, who was nursing the baby, ate: "sometimes very abstemiously, other times freely—used butter, cheese, wine, etc., etc. Consequently the child's illness was prolonged and he had eruptions three successive times."

Dewees, Eberle, and Underwood

Underwood, an Englishman, and Dewees and Eberle, Americans, were physicians who followed Hamilton and Smith and wrote of child care in the early part of the nineteenth century. All agreed that mother's milk was best for the child. They had little different to say on the subject of infant feeding, except that there seemed to be a growing feeling that children be given nothing but milk until they had teeth. Dewees commented (18) on Underwood's statement (19) that ass's and mare's milk were better for infants than cow's milk, saying that in this country cow's milk was generally used, and that he had had no opportunity to observe the use of other milks. Underwood's book (19), published in 1818, contains notes by "a Physician of Philadelphia."

These doctors in their writings condemned many of the common practices of the day. From them, we get a glimpse of what people were feeding infants. They gave them improper food until the mother's milk supply arrived; they fed them too much pap and panada; they continued to purge them; they dosed them with laudanum and paregoric to keep them quiet at night. Animal foods were given too frequently and too soon. Eberle cautions (20) that "strongly seasoned meats, compound dishes, ragouts, hashes, meat pies and pastry are to be wholly rejected." He also condemned the practice of allowing children a little wine, spirits, or malt liquors. He has much to say against sweetmeats, especially raisins. He believed children might have fruit if perfectly ripe and mellow, but fruits with a firm cuticle (grapes) were improper articles of food. He also urged that weaning be gradual and not sudden, and suckling should not be continued longer than was consistent with the welfare of the mother and child. Children should not be nursed for eighteen or twenty months or longer when the mother's health was suffering and she was becoming pale, debilitated, and nervous, as he had frequently observed.

From the Mead Johnson Collection of Pediatric Antiques

Pewter feeding bottle, English, circa *1780.*

Dewees believed (18) that the practice of giving weaned children oyster soup was a good one, but he did not approve of lobster and crab for children. Dry bread crust with butter was good for children with teeth, although some people were afraid to give butter. Dewees wrote that most people were in the habit of giving potato to children with teeth. He disapproved of this, but mentioned in a footnote a report of a reduction in death rate in a European parish after the introduction of the potato. He admitted it might be used advantageously by the poor who had no better food. He said there was a "vulgar" common belief that solids were more nutritious than fluids, and, that if a child were ill, the more frequently meat was given, the more the child would be benefited. "Children who are brought up by artificial means in this country, have subsisted almost altogether upon cow's milk reduced [with water.]" He used loaf sugar, rather than brown sugar or molasses.

He condemned the common nursery practice of "jolting" the infant after each meal or part of it. "It is a common error to give children much and varied foods after weaning, thinking they need it." His favorite foods for children were milk, rice and water, gum arabic, arrowroot, weak animal juices, and farinaceous substances. Weaned children might have a soup of eggs and beer.

Underwood cautioned (19) against giving veal or chicken, no matter how finely minced, until the child had teeth, but said, "Don't keep children too long on too fluid or too slender a diet." He believed this to be the cause when the belly and joints became enlarged and the bones of the lower extremities too weak to support the child. He approved the use of puddings, blanc mange, white-pot custards, and such like kitchen preparations with milk and a little red wine.

WET NURSES

The question of whether a mother should suckle her infant was often discussed. When a mother could not nurse her baby, she hired a wet nurse by the month or year, if there was not one available among the family or slaves. Moralists had much to say about the unnatural mother who turned her babe over to another woman. The mother may have done this to preserve her figure, to be free to enjoy amusement, or carry on other duties, but the usual excuse was the mother's weak constitution. Sometimes the wet nurse lived in the parents' home, other times the infant was cared for in the home of the wet nurse.

Advertisements such as the following appeared frequently, as soon as newspaper publication began in the colonies (11, 22):

Wanted

A NURSE with a good Breast of Milk, of a healthy Constitution, and good Character, that is willing to move into a Gentleman's Family. Such a one may hear of a very good Encouragement, by enquiring of the Printer hereof.

or

Two healthy likely wet nurses with their first children to be hired out by the month. Inquire at the Printers.

Wanted by the Month

A HEALTHY CAREFUL NEGRO WENCH for a WET NURSE. One without a child will be most agreeable, or with a child not above 6 months old.

There were elaborate rules for selecting a wet nurse (15, 18–20), but probably only the wealthy could observe them. The quality of breast milk was judged by the way a drop rolled off the fingernail, or by the color or odor (1). Milk from a red-haired woman was considered bad (1, 18).

In the appendix of Hamilton's book (15) are found rules for selecting a wet nurse. Her health and moral character should be good. She should have plenty of wholesome milk, and her breasts should be well formed with prominent nipples. Her child should be healthy and thriving. A nurse whose child was born dead should not be chosen unless there was an accident in delivery. The nurse should not be a tobacco user. One who never had smallpox was considered an improper nurse, but neither should a nurse be badly marked by the disease. A nurse suspected of having a disease and blemishes, such as immoderate squinting, should be avoided. A child should not be placed with a nurse at a considerable distance from the parents. In such cases, the "attention to management on which the health of the infant depends are seldom faithfully paid." To be a good nurse a woman must have a regular diet at regular times, scheduled hours of rest, and moderate exercise in the open air. She should not eat too much or too little, and she should guard against fatigue, indolence, overactivity, or overexcitement.

The practice of sending children of city mothers to wet nurses in the country had been carried on for centuries in most European countries, for it was recognized that babies did not thrive in the city. However, wet nurses became greedy and tried to nurse several babies at one time to make more money, and the infants might not get much breast milk—only large quantities of pap or panada. The death rate climbed. Some city people brought the wet nurse to their city homes, but physicians cautioned that the life and habits of the nurse should not undergo so great a change; otherwise her milk might not be good. Some conscientious mothers then moved to the country where they could supervise the care of their babies by the wet nurse. The regularity of country life and exercise in the out-of-doors was acknowledged to be beneficial to both mother and baby (15).

Eliza Pinckney, a well-to-do mother from the southern colonies, while in England discussed this subject with the Princess of Wales and left this account of the conversation (11): "She asked me many little domestick questions as did Princess Augusta among which if I suckled my children. I told her I had attempted it but my constitution would not bear it. She said she did not know but 'twas as well let alone, as the anxiety a mother was often in on a child's acct might do hurt. I told her we had Nurses in our houses, but it appear[d] very strange to me to hear of people putting their children out to nurse, we had no such practices in Carolina, at which she seemed vastly pleased; she thought it a very good thing, the other was unnatural. Princess Augusta was surprised at the suckling blacks; the Princess stroakt Harriott's [Mrs. Pinckney's little daughter] cheek, said it made no alteration the complexion and paid her the compliment of being very fair and pretty."

Other visitors and new arrivals in the southern colonies were surprised and even shocked at the use of the Negro wet nurses. John Davis, an Englishman, was disturbed by the custom because the children copied the gestures and accents of their nurses. He also commented (11): "It is not unusual to hear an elegant lady say, 'Richard always grieves when Quasheehaw is whipped, because she suckled him.' "

SUPPLEMENTAL FEEDINGS

Physicians noted that children's appetites were not satisfied with liquids, and that they needed other nourishment. However, they disagreed as to when supplemental feedings should be given and of what they should be made. Some said extra food should be started at two months, others would withhold everything but milk until the child had teeth or was to be weaned. Appetites might be blunted with an oily substance, such as butter, or nourished with pap, panada, hasty pudding, or a similar food which would stay some time in the stomach (23).

The most common supplementary foods for infants were "pap" and "panada." According to Drake (22), pap consisted of flour or bread cooked in water with or without the addition of milk. The term "panada" was applied to preparations of various flours, cereals, or bread with butter or milk which were usually cooked in broth. With some authors the two terms were synonymous. Sometimes beer or wine was used in making pap, or the broth could be made from flesh or legumes. Egg yolk or whole egg was added in some instances. These "spoon meats," as they were called, were frequently seasoned with pulverized anise seed. When made from flour, the paste was quite viscous, and most of these foods were rather thick and mucilaginous, although some pediatricians of the past recommended thinning them. Physicians differed in their ideas of how the pap or panada should be made. Some preferred beer, others objected to this or to the use of diluted wines or spirits of any kinds. Some recommended that it be made without milk.

One recipe for cream of bread, a type of panada, (23) called for steeping bread 6 hr., pressing it through a cloth, and boiling it with sufficient water for 8 hr. It was to be stirred from time to time and

diluted with warm water. For seasoning, 59 grains anise and 1 oz. sugar per pound of bread was used. Finally, the whole thing was passed through a hair sieve. The user was cautioned to "take care to reheat each time only the necessary quantity."

The following recipes are from a cookbook (24) by Mrs. Maria Eliza Ketelby Rundell who lived from 1745 to 1828.

Panada; Made in Five Minutes

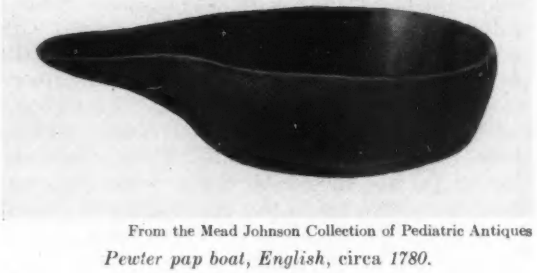
Set a little water on the fire with a glass of white wine, some sugar, and a scape of nutmeg and lemonpeel; meanwhile grate some crumbs of bread. The moment the mixture boils up, keeping it still on the fire, put the crumbs in and let it boil as fast as it can. When of a proper thickness just to drink, take it off.

Chickenpanada

Boil it till about three parts ready in a quart of water, take off the skin, cut the white meat off when cold, and put into a marble mortar; pound it to a paste with a little of the water it was boiled in, season with a little salt, a grate of nutmeg, and the least bit of lemonpeel. Boil gently for a few minutes to the consistency you like; it should be such as you can drink, though tolerably thick. This conveys great nourishment in small compass.

Cadogan felt (12) that milk should not be boiled in making pap. The bread and water should be boiled almost dry, then mixed with unboiled milk.

Some physicians considered that dry bread and biscuits produced a more digestible food. Bread three or four days old was crumbed and might be further dried or powdered. It was then cooked over a slow fire in one of the suggested liquids to the consistency of jelly. The mixture had to be stirred occasionally. The process often took hours. One physician suggested that it be cooked in an earthen pot kept only for that purpose (23).



From the Mead Johnson Collection of Pediatric Antiques

Pewter pap boat, English, circa *1780*.

Hamilton (15) recommended giving pap or panada early in addition to milk. At first, this additional food should be given only once a day, and by degrees, it could be increased to two meals. The child should be getting three meals before weaning. Weaning was more difficult if this was not done, and the infant might suffer from sudden change. Weaning should occur from nine to twelve months, or at eighteen months for the child "whose parents have a scrophulous habit," but it should not be done in winter or while a child was ill. The diet should be changed by degrees by increasing the spoon feedings and giving smaller portions of mother's milk.

Commenting on common practices in vogue at the time, Hamilton said (15): "Some women deprive the infant of the breast at once, others by the application of mustard and nauseous substance, to the nipples. Both practices are equally cruel." He also felt the habit of nurses of giving laudanum or syrup of poppies every night after weaning for considerable time to combat restlessness was harmful. Except for the first night or two it should never be allowed. The weaned child should have meals at regular intervals, no food or drink at night, no spirits and water, or wine whey. The food of the weaned should be weak beef tea, panada, light puddings, and various preparations of milk. Hamilton believed rusk biscuit superior to ordinary bread and that oatmeal, porridge, or pottage which was much used was undoubtedly too difficult for infants to digest. He felt that frequent exposure to open air in favorable weather and an increased degree of exercise was highly beneficial to newly weaned infants.

At the time of the Revolution, "Infancy or the Management of Children," a three-volume poem by Hugh Downman (1, 25), an English physician, made its appearance. He advised that the mother nurse her child or obtain a reliable wet nurse. Supplemental feedings of bread boiled in water and mixed with milk could begin at two months. Children should be weaned at nine months and fed fresh broths, milk with bread, rice, and so on. Solid foods should be withheld until children had teeth. One meal a day might contain simple animal food with vegetable and bread. Children should have only water to drink, no beer or spirits, and he advised against highly seasoned foods.

Older babies were undoubtedly given tastes of food which the rest of the family ate. Since it was customary for the mother or nurse to take the food into her mouth first, chew and dilute it with saliva, and then place it in the infant's mouth, it is quite probable she frequently used whatever foods were available.

This custom was not new. In about 1565, Simon deVallambert, a French physician, condemned (1) the practice. In fact, his writing sounds quite modern, for he felt that even to drink from the cup or glass of another person was unhealthy. Somewhat later, another opponent of the practice was Dewees, who, in 1825 criticized (18) nurses for passing through their own mouths every bit of food, even liquids,

that they gave to infants. He said the only excuse was to prevent the food from being too warm, but that it was a filthy and injurious practice. Nevertheless, it was continued by mothers in this country in rural areas to within the memory of people living today.

RAISING BY HAND

If a child was not nursed by its mother and a wet nurse could not be obtained, "dry nursing" or "raising the child by hand" was sometimes attempted. This method depended largely on pap and panada and was the most difficult and the least successful.

Pap or panada, however, was not without its critics. Von Rosenstein, in 1776 blamed (23) its use for "hardness of the stomach, acidities, wind and many other indispositions by which we lose at least the one half of our children." Saucerotte, writing in France in 1777, said of pap (26): "Though infants fed on it appear fat and well, their embonpoint is fictitious." The use of pap, he believed, led to rickets and scrofula.

Hugh Smith felt (16) that the safest method of bringing up children "by hand" was to feed cow's milk with sugar in it. Broths could be added after four or five weeks. Custards made with milk should be given when a child was being weaned, along with new milk from cows, bread, and broth.

Hamilton (15) believed that for those children who must be raised "by hand," pap and panada were the first foods to be given as substitutes for human milk. Cow's milk could be mixed with a little water and sugar, a small portion of rusk biscuit added, or weak beef tea could be substituted for the milk, and water and sugar added.

By the close of the eighteenth century, maternal nursing was recognized as the best method of nourishing infants. The prevailing question then was whether children who could not be nursed by their mothers should be confided to wet nurses or fed cow's milk mixtures. Writers were doing their best to discourage the almost universal use of pap as the sole manner of bringing up infants by hand (1, 13, 22, 27).

MEDICATIONS

Young children in the colonies received foods that were considered unsuitable by some physicians. Benjamin Rush describes (28) a patient of sixteen months who cured herself of cholera infantum "by eating large quantities of rancid English cheese, and drinking two or three glasses of port wine every day. She would in no instance eat bread with the cheese, nor taste the wine, if it was mixed with water." He also said: "Summer fruits have been accused of producing this disease. To this opinion I object, that the disease is but little known in country places, where children eat much more fruit than in cities. As far as I have observed, I am disposed to believe that the moderate use of ripe fruits, rather tends to prevent, than to induce the disease. After the disease has continued for some time, we often see an appetite suddenly awakened for articles of diet of a stimulating nature. I have seen many children recover from being gratified in an inclination to eat salted fish, or the different kinds of salted meat. In some instances they discover an appetite for butter, and the richest gravies of roasted meats, and eat them with obvious relief to all their symptoms." Rush suggests several measures for preventing the disease, including: "A moderate quantity of salted meat taken occasionally in those months in which the disease usually prevails. It is perhaps in part from the daily use of salted meat in diet, that the children of country people escape this disease." He also recommends "the use of sound old wine in the summer months. From a tea spoon full, to half a wine glass full, according to the age of the child, may be given every day."

Some of the concoctions given sick infants sound quite indigestible. Venice treacle, a nasty popular compound, according to tradition invented by Nero's physician, was made of vipers, wine, opium, spices, licorice, red roses, tops of germander, St.-John's wort, twenty other herbs, juice of rough sloes, and mixed with honey (3). It was surely a survival of the strong and hardy!

Children were dosed with many nostrums. Daffy's Elixir was a popular patented or secret medicine. This had a rival in snail water which was used as a tonic or lotion. Many of the ingredients and extracts used in domestic medicines were incredibly revolting. Mithridate, the ancient cure-all of King Mithridates, was a popular dose for children which contained forty-five ingredients. Rubila, made of antimony and nitre, was a favorite of the Winthrop family (3).

Rickets was common; its antidote was snails. Sirup of dried black cherries was also used (3). The cherries were soaked in hot water, strained through a cloth, and sweetened with liquor and molasses. Two teaspoons of this were given two or three times a day.

Teething was a difficult time for children in those days. Serious soreness, redness, and ulcers of the gums were described. Fits, fevers, convulsions, skin eruptions, coughs, gripes, and looseness of the bowels were all attributed to teething in the colonial days and for some time thereafter (15, 18–20).

COOKING AND EATING UTENSILS

In colonial times, refrigeration was practically unknown. Ice was not commonly stored and was available only to prosperous people. Its use was mentioned in 1790 in the journal of Epaphrus Hoyt as a method of cooling punch (7), but an ice box as such was not invented until 1803, when Thomas

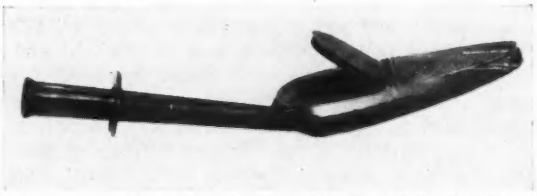
Moore, a Virginia farmer, constructed a container for ice to use in carrying his butter to market. The "use of refrigeration spread slowly because of the high cost of ice" (9).

Thus, care had to be taken, particularly in warm weather, to get milk fresh from the cow to the infant. The only way to keep milk cool was by putting it in a cool place and by cooling it with cold water. Some nurses tried to use slightly soured milk by adding more sugar, but Dewees cautioned against this (18).

Feeding equipment was of odd shapes and difficult to clean. Even in the early nineteenth century, the only directions for cleaning it were washing with soap and water and soaking in water (18, 20, 29).

DeVallambert probably described the first baby feeding apparatus (1): "a horn with an opening at both ends, one end being made into the shape of a teat, through which the infant sucks the pap just as it sucks breast milk by the nipple."

Pap boats and spoons were used to pour food into the infant's mouth. Pap or feeding spoons were made from medicine spoons by enlarging the opening at the tip (30). The bowl of the spoon had a hinged cover. It could be filled here or through the hollow handle. If the contents were not taken as rapidly as desired, the nurse could blow down the handle.



From the Mead Johnson Collection of Pediatric Antiques

English pewter pap or castor oil spoon, circa *1800. The bowl was filled by lifting the trap door in the lid. The end of the bowl was placed in the child's mouth and the flow controlled by placing a finger over the open end of the hollow handle. If the contents were not taken as rapidly as desired, one could blow down the handle.*

A pap boat with a capacity of 2½ to 3 fluid oz. (30) looked somewhat like a small gravy boat.

There were pottery feeding flasks (capacity 6 to 10 oz.) (30) and pottery and pewter bottles and pots, but glass bottles did not appear until about 1800. Until glass was introduced, daily rinsing was considered to be sufficient cleaning, but with the transparency of glass, it became apparent that this was not effective.

The feeding pot described by Hugh Smith (16) and Underwood (19) seemed to be the most difficult to clean. It was a spouted pot which looked something like a coffee pot with a spout which continued down into the bottom and contained little more than ¼ pt. (31). In England, feeding pots were made of pewter and silver (26, 30). The Pennsylvania Dutch made a similar nursing can of tin, the usual capacity of which was 150 to 170 cc. One large specimen contained 390 cc. (31).

Tanned heifer's teats were used for nipples (18, 32). They contained a small sponge at the end to retard the flow of milk. Properly tanned ones were difficult to obtain and preserve. They had to be soaked in wine and water between feedings or they could become too hard (18). Often, though, in soaking, they became too soft. Sometimes several loose folds of cloth were tied over the openings of a bottle. There is mention of a silver tube and nipple (20). Two small bits of parchment or leather were sewed together like the finger of a glove, and the infant sucked food through the loose stitches or perforations (30). The pottery feeding bottles were shaped to form a nipple, as were wood, cork, and ivory (29).

Silver nipple shields, used as breast protectors, have been found in England (33). Occasionally when the breast milk flowed too freely for the newborn infant and threatened to strangle it, the nurse was advised to ligate the nipple with a piece of yarn.

A pottery pap warmer has been found which had a small lamp below the bowl, also one which had a flange and a lid with a candle holder on top (23).

As a soother, babies were given small bags made from a bit of rag which contained a piece of bread or biscuit that had been immersed in a sugar solution. A small covered vessel from Germany has been handed down as an example of the type of container in which such a sucking bag was steeped (30).

From the Mead Johnson Collection of Pediatric Antiques

Pennsylvania feeding pot of tin. The spout is a continuation of a tube reaching down to the bottom of the cup. This can is probably a modification of Hugh Smith's feeding pot, 1774.

There is a controversy among collectors of historical objects as to whether porringers were used for serving cereal or were actually bleeding bowls (30). Some contained 9 oz., some 3.

In colonial times, there were no sieved foods as we know them today. Sieves of that era were made of hair, splint, horse's manes, cow's tails, and white silk. There were few of wire. Riddles were sieves with a mat of brass wire. Wire sieves appeared much later for general use (34).

A sand bath was sometimes used for warming infants' milk. Silver, pewter, crockery, and china of the time could not stand direct heat (30). The vessel containing the milk was placed in an iron pot containing dry sand which was then placed over coals or on a stove until the milk was properly warmed (18).

The healthiest infants in colonial times were those who were nursed by healthy, well-fed mothers. There were many who were not so fortunate, and these babies were malnourished. Many had scurvy and rickets, and many, many died. It was the hardiest and healthiest who survived, such as Madame Austin's sixteen children, all of whom lived to be three score and ten and one lived to be 102 (3). Relatively few infants in colonial days had this opportunity for longevity. People in those times were handicapped by lack of scientific medical knowledge. This, plus materials, equipment, and knowledge of methods of handling foods which we enjoy today, and the fairly new knowledge of nutrition has enabled physicians and mothers to make remarkable progress in feeding their infants, as compared to the customs and necessities of the colonial era.

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Nitrogen Balances, and Amino Acid Content of Self-Selected Diets of Women[1]

MAY S. REYNOLDS, Ph.D., MARY F. FUTRELL, Ph.D., and C. A. BAUMANN, Ph.D.

Department of Foods and Nutrition, School of Home Economics and *Department of Biochemistry, College of Agriculture, University of Wisconsin, Madison*

IT HAS been pointed out (1) that requirements as determined in controlled laboratory studies are not necessarily representative of those found under the conditions of self-selected diets. The latter situation represents a practical approach to food utilization in everyday living, but little information of this nature is available. Sheft and Oldham (2) studied the diets of pregnant women, including the content of essential amino acids and nitrogen balances. Recent papers by Mertz *et al.* (3) and by Futrell *et al.* (4) have reported such data on the diets of nonpregnant women. This paper reports the nitrogen balances and amino acid content of the diets of twelve women living in their own homes and selecting their own food. These data are not offered as a means of determining minimum requirements or of criticizing existing recommendations.

The twelve subjects of this report, all of whom lived in Madison, Wisconsin, ranged in age from thirty to forty-two years with the exception of one woman who was sixty-four. The principal basis for their selection was willingness and ability to cooperate. Each woman weighed and recorded all food eaten for thirty days. For two five-day periods of that time, she supplied samples of her food from which an appropriate aliquot was weighed and preserved for analysis by freezing. She also collected excreta for the same periods. Urine was preserved with toluene. Feces were collected in acid-alcohol. Two women were studied for additional periods, bringing the total number of balance periods to twenty-eight.

Nitrogen determinations were made by the boric acid modification of the Kjeldahl method (5). The amino acid determinations were made according to the microbiologic methods of Steele *et al.* (6). For this purpose, foods were divided into the following groups: meats; eggs; cheese; milk; cereals, including bread, cake, and dry breakfast cereals; and finally a food mixture consisting of fruits, vegetables, and prepared dishes that did not belong in other categories. This separation was considered necessary because of the observation (4) that the apparent values and recoveries for certain of the amino acids were higher when made on separate foods than when made on composites.

NITROGEN BALANCE

The results of the 28 balance periods, grouped according to caloric intake as calculated from food composition tables, are shown in Figure 1. In 15 of the 28 periods, these subjects were losing nitrogen in amounts ranging from an average of 0.5 gm. to as much as 3.4 gm. per day. The average total nitrogen intake per day for these periods showing negative retention ranged from 4.53 to 14.43 gm. Four-fifths of these negative balances occurred on daily protein intakes below 1.13 gm. per kilogram. However, the lowest level of 0.6 gm. per kilogram is well above that reported by some other investigators (7, 8) to be sufficient to support nitrogen equilibrium in adults under controlled laboratory conditions.

The influence of the total energy value of the diet on nitrogen utilization has been pointed out in a recent report by Ohlson *et al.* (9) in studies of mature women and by Oldham and Sheft (10) in studies on pregnant women. In Figure 1, this relationship is evident. Nitrogen storage was observed in only two periods in which the energy intake was below 30 calories per kilogram. These findings emphasize the importance of energy-protein relationships in situations in which individuals are advised to reduce their caloric intake. It is recognized that in a study

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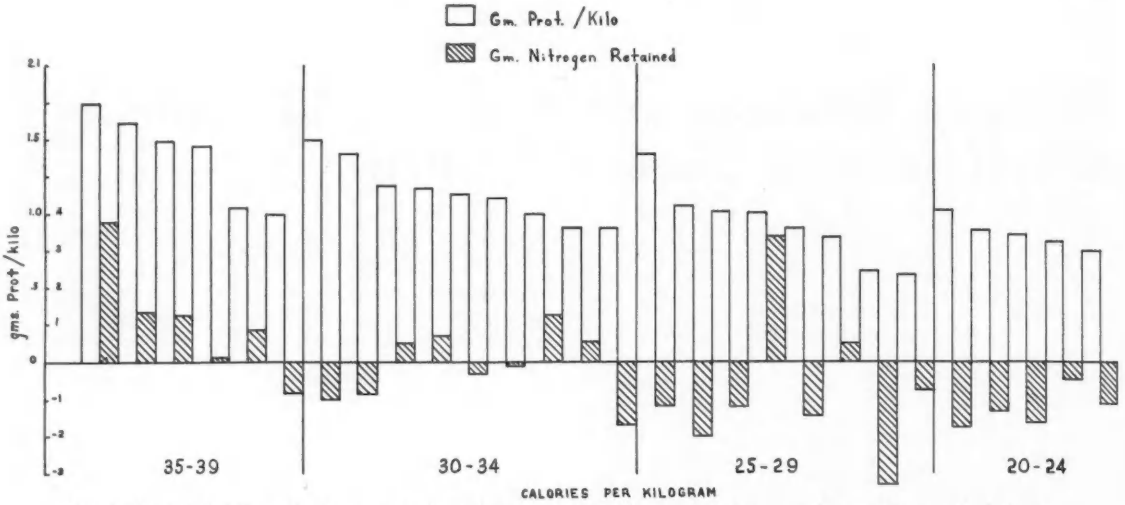

FIG. 1. *Protein intake and nitrogen retentions in twenty-eight balance periods grouped according to caloric intake.*

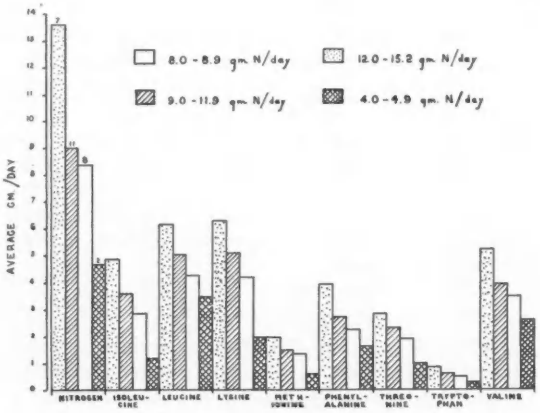

FIG. 2. *Distribution of essential amino acids in the diets at different levels of nitrogen intake.*

of this type, in which there has been no intent to control, but rather to study the usual practices of the subjects, factors such as emotional states, unrecognized infections, and a possible lag in nitrogen excretion may affect the apparent nitrogen utilization.

ESSENTIAL AMINO ACIDS

The concentration of the essential amino acids in a diet is a determining factor in the value of the protein components. Determinations have been made of the eight essential amino acids in these diets. The results are shown in Figure 2. For convenience in discussion, the twenty-eight periods have been divided into four groups on the basis of the total nitrogen content. As might be expected, the concentration of the essential amino acids follows quite closely the pattern of total nitrogen content. The low levels of tryptophan and methionine and the generous amounts of leucine, isoleucine, lysine, and valine are readily noted. Except for lysine which is somewhat higher in these diets, the average intake of these women agrees quite closely with that of the diets of the pregnant women reported by Sheft and Oldham (2).

Some evaluation of the amounts and proportions of these essential amino acids is possible by comparison with the minimum amounts found by Rose (11) to be required for the maintenance of nitrogen balance. It should be pointed out, however, that the situations are not comparable. Rose's subjects were young men, eating a synthetic diet under carefully controlled laboratory conditions. The diet contained no cystine and furnished 55 calories per kilogram, a caloric level much higher than that chosen by any of our subjects.

The average daily intakes of the eight essential amino acids during the eleven balance periods in which subjects showed nitrogen retention are presented in Table 1. A comparison of these amounts with the Rose minima shows that leucine, lysine, and valine were present in amounts from four to ten times the Rose minima and isoleucine from two to eight times the Rose minimal requirements. In two periods, the amount of methionine exceeded the Rose recommended intake of 2.2 gm. but in all others fell below that amount, while in two periods the amount was less than 80 per cent of the Rose minimum.

Of the remaining 17 balance periods, 2 represented a subject who was in almost exact nitrogen balance, while 3 others were from a subject who lost nitrogen in considerable amounts during those periods. She was on an excellent diet with an amino acid content well above all Rose minima. Recently some evidence

TABLE 1

Average daily intake of essential amino acids during balance periods in which subjects showed nitrogen retention (arranged in order of total nitrogen content of diet)

SUBJECT	PERIOD	TOTAL NITROGEN	ISOLEUCINE	LEUCINE	LYSINE	METHIONINE	PHENYLALANINE	THREONINE	TRYPTOPHAN	VALINE	NITROGEN BALANCE
		gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*
C. W.	I	15.20	5.73	7.35	7.17	2.54	4.88	3.44	1.28	4.58	3.80
C. W.	II	13.92	5.41	6.34	6.31	2.28	4.25	3.14	1.01	3.97	1.30
L. M.	II	12.62	4.03	6.50	8.61	1.55	3.31	2.99	0.79	5.90	0.53
Cl. W.	II	12.10	4.44	5.46	5.80	1.72	3.17	2.58	0.53	4.04	0.04
Cl. W.	I	11.91	3.79	4.67	5.59	1.53	2.74	2.33	0.68	3.73	1.22
L. M.	I	11.44	3.61	5.47	6.77	1.44	2.99	2.69	0.72	4.49	0.48
Z. W.	I	9.90	3.75	5.43	6.17	1.39	2.87	2.50	0.69	5.39	0.50
Kra.	II	9.83	2.88	4.28	3.21	1.55	2.80	2.18	0.52	4.32	0.88
Z. W.	II	9.50	3.57	4.90	5.75	1.35	2.66	2.34	0.68	4.51	0.70
Ad.	I	9.02	1.63	4.60	2.59	0.81	2.18	1.32	0.44	3.06	3.35
Ad.	II	8.18	1.62	4.83	3.25	0.83	2.28	1.44	0.44	3.20	1.28
"Average" American diet (13)		14.24	4.2	6.5	4.0	3.0	4.1	2.8	0.9	4.2	
Rose minima (11)			0.70	1.10	0.80	1.10	1.10	0.50	0.25	0.80	

of a minor infection has been found which probably accounts for the nitrogen loss in her case. In the other 12 periods, leucine, lysine, and valine were furnished in amounts 3 to 5 times and isoleucine and threonine 2 to 6 times the Rose minima. Tryptophan and phenylalanine ranged from amounts equal to the Rose minima to 3 times that amount. Methionine fell below Rose's 1.1 gm. minimum requirement in 4 periods and well below the recommended intake of 2.2 gm. per day in all periods showing nitrogen loss (Table 2).

Using "Family Food Consumption in the United States," (12) Block and Bolling (13) have calculated the amino acid content of the diet of the "average" American. The results of their calculations have been included in Table 1. Comparison with the data presented in these tables shows that in only a relatively small number of cases did the diets of these women furnish quantities of amino acids equal to or in excess of this average. In comparison with these averages, lysine, valine, and isoleucine occurred most generously and methionine, least. The data of Block and Bolling include cystine with methionine. However, the amounts of cystine found by analysis of the food consumed by five of our subjects in ten periods were so low that the total methionine and cystine would not equal this average.

Because the amounts of methionine were below the recommended levels in all but two periods, one of the subjects (H. W.) was given a supplement of *dl*-methionine during balance period IV. Data on five periods are given for her in Table 3. During three of these periods, her intake of methionine was considerably below that of the Rose recommendation, and she showed nitrogen loss. She was asked to continue on her usual diet and was given supplements of 1.5 gm. (0.5 gm. per meal) of *dl*-methionine per day for ten days, with collections of food and excreta during the last five days. She continued in negative balance, although with the methionine supplement, all of the essential amino acids were furnished in her diet in amounts in excess of the Rose recommendations. In another five-day period, her diet was supplemented with 300 gm. milk per day, to be taken at the meal having little if any animal protein, but she continued to show nitrogen loss. It is difficult to account for this persistent nitrogen loss. Computed values of her caloric intake show no relation to the extent of nitrogen loss. Medical examination revealed no infection or other pathologic condition that might explain poor protein utilization. The vitamins of the B-complex were low in her diet. A study of her dietary record reveals a haphazard food selection with few well-planned meals. Her dietary practices were illustrative of those of many women whose husbands are out of town much of the time, as hers was. She fed her two children fairly well, but seldom prepared a really good meal for herself. Study of her diet suggested other supplements, but unfortunately the family left town so that she was no longer available for study.

Of equal interest is Subject *Ad*, who made very efficient utilization of protein. She stored nitrogen during both periods, although her protein intake was 1 gm. per kilogram or less and her computed caloric intake was 25 and 34 calories per kilogram for the two periods. Her average daily intake of the eight essential amino acids is compared with the Rose minima in Figure 3. The low level of methionine is especially notable. In only two of the ten days was her methionine intake equal to the Rose minimum. The intake on other days ranged from 0.53 to 0.91 gm. In a previous study (4), it was pointed out that

TABLE 2

Average daily intake of essential amino acids during balance periods in which subjects showed nitrogen loss (arranged in order of total nitrogen content of diet)

SUBJECT	PERIOD	TOTAL NITROGEN	ISOLEUCINE	LEUCINE	LYSINE	METHIONINE	PHENYLALANINE	THREONINE	TRYPTOPHAN	VALINE	NITROGEN BALANCE
		gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*
M. N.	II	14.43	4.88	6.25	5.25	1.98	4.00	3.02	0.91	5.79	−1.00
M. N.	I	13.45	4.54	5.82	5.85	1.93	3.66	2.57	0.73	5.90	−0.82
M. N.	III	13.40	5.04	5.79	5.29	2.03	4.40	2.95	0.90	5.98	−1.19
H. W.	I	10.06	3.63	4.61	4.90	1.34	2.36	1.88	0.58	3.39	−1.13
H. W.	V	9.60	4.25	6.14	5.53	1.64	3.00	2.50	0.74	4.35	−2.00
E. J.	I	9.56	4.74	5.77	5.75	2.02	3.22	2.91	0.76	3.28	−0.10
E. J.	II	9.30	4.19	4.97	4.69	1.90	2.80	2.41	0.65	2.85	−0.30
L. H.	I	9.05	3.08	5.15	5.38	1.38	2.46	2.24	0.63	4.07	−1.17
H. W.	III	8.78	3.77	4.96	4.36	1.25	2.51	2.02	0.57	3.74	−1.70
Kra.	I	8.45	2.78	3.94	3.85	1.67	2.26	2.03	0.51	3.82	−0.76
H. W.	II	8.43	2.78	3.85	3.55	1.08	1.94	1.42	0.42	2.58	−1.33
H. W.	IV	8.42	3.79	5.00	4.67	2.84*	2.52	2.09	0.58	3.76	−1.66
G. N.	I	8.32	3.06	3.80	4.95	1.14	2.44	2.10	0.58	4.10	−0.50
L. H.	II	8.29	2.84	4.91	5.22	1.22	2.68	2.02	0.56	3.31	−1.41
G. N.	II	8.00	2.49	3.28	3.63	0.90	1.98	1.68	0.50	3.19	−1.09
McK.	I	4.78	1.15	3.58	1.70	0.58	1.69	1.06	0.25	2.62	−3.39
McK.	II	4.53	1.29	3.37	2.38	0.67	1.53	0.97	0.28	2.51	−0.72

* 1.5 gm. supplement.

TABLE 3

Content of essential amino acids (average per day) of the diet of one subject for five five-day periods

AMINO ACID	PERIOD I	PERIOD II	PERIOD III	PERIOD IV	PERIOD V*
Isoleucine (gm.)	3.63	2.78	3.77	3.79	4.25
Leucine (gm.)	4.61	3.85	4.96	5.00	6.14
Lysine (gm.)	4.90	3.55	4.36	4.67	5.53
Methionine (gm.)	1.34	1.08	1.25	2.84†	1.64
Phenylalanine (gm.)	2.36	1.94	2.51	2.52	3.00
Threonine (gm.)	1.88	1.42	2.02	2.09	2.50
Tryptophan (gm.)	0.58	0.42	0.57	0.58	0.74
Valine (gm.)	3.39	2.58	3.74	3.76	4.35
Calories per day	1777	1343	1927	1427	1615
Total protein (gm.)	62	53	55	52	60
Protein (gm./kg.)	1.02	0.87	0.90	0.85	1.03
Nitrogen balance (gm.)	−1.13	−1.33	−1.70	−1.66	−2.00

* Supplemented with 300 gm. milk per day.

† Supplemented with 1.5 gm. *dl*-methionine per day (0.5 gm. per meal).

the apparent deficiency of methionine in self-selected diets might not be an actual deficiency, but rather a reflection of the fact that Rose's "tentative requirement" for this amino acid (11) is too high when applied to a natural diet containing cystine. This point of view is strengthened by the ability of Subject *Ad* to retain nitrogen on a lower level of methionine than that regarded as "minimal." Further data of this sort would be of interest.

For this subject, tryptophan ranged from 0.24 to 0.62 gm. per day compared to the Rose minimum of 0.25 gm. In only four of the ten days did her intake equal or exceed the Rose recommended intake. Other essential amino acids occurred in excess of the Rose recommended intakes.

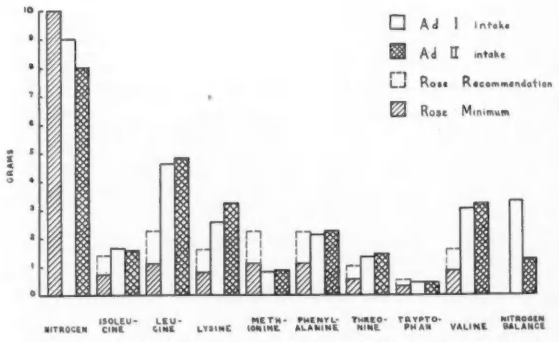

FIG. 3. *Average daily content of essential amino acids of two five-day periods of Subject Ad, with comparisons with the Rose minima and recommended intakes.*

That the supply of essential amino acids does not explain protein utilization as indicated by nitrogen balance is shown by a comparison of Subject *L. H.* I. with *Ad* I. The diet of *Ad* I. furnished 1 gm. protein and 25 calories per kilogram; that of *L. H.* I., 1 gm. protein and 21 calories per kilogram. Study of Figure 4 shows that the content of essential amino acids is somewhat greater in the diet of *L. H.* I. during a period of nitrogen loss than is that of *Ad* I. in one showing nitrogen storage.

For four subjects, the amino acid content of each meal was determined. The pattern of amino acid distribution was very similar from day to day for the same subject, but differed from subject to sub-

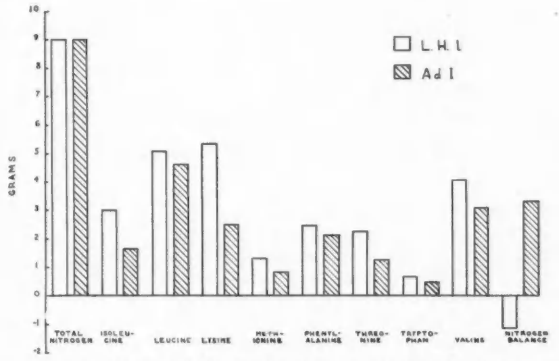

FIG. 4. *Average daily intake of essential amino acids and nitrogen retention of two subjects having the same total nitrogen intake.*

ject. Complete data are to be presented in a later report.

EIGHTEEN AMINO ACIDS

No data are available on the concentrations of the so-called dispensable amino acids in self-selected diets. Such determinations have been made on the diets consumed in ten five-day periods by five of these subjects. The average daily intake of eighteen amino acids is presented in Table 4.

Work with experimental animals has shown that cystine may supplement methionine (14) and tyrosine, phenylalanine (15). In view of the low levels of methionine in these diets, it is interesting to note that the average intake of cystine by these subjects appeared to be less than half that of methionine. Unfortunately, however, the microbiologic determination of cystine is less satisfactory than that of the other amino acids, losses in hydrolysis being particularly serious. Hence, further data are needed before the replacement value of the cystine in ordinary diets can be assessed accurately. The phenylalanine and tyrosine content of these diets was much higher than that of methionine and cystine.

Inasmuch as muscle tissue probably represents a large proportion of protein "turn-over" in the body, the amino acid content of 70 gm. protein from muscle meat has been included in this table for comparison. In a comparison of the average daily intake of five subjects for ten five-day periods with the content of muscle tissue as represented by "meat" protein, glutamic acid and tyrosine occur in the diets in appreciably larger amounts than in meat protein. Glycine and isoleucine are furnished in smaller amounts in the diet than in meat protein. It seems possible that a distribution of all amino acids more nearly comparable to that in muscle tissue might contribute to improved utilization.

SUMMARY

The self-selected diets of twelve women for a total of twenty-eight periods have been studied. The nitrogen balances and content of essential amino acids have been determined for all periods. In ten five-day periods of five subjects, eighteen amino acids have been determined.

In fifteen of the twenty-eight periods, subjects showed nitrogen loss. A probable effect of the total energy content on protein utilization has been noted. Of the essential amino acids, leucine, lysine, and valine were furnished most generously, while tryptophan and methionine intake was lowest.

All essential amino acids except methonine were furnished in amounts equal to or in excess of the Rose minima. Methionine exceeded the Rose recommended intake in only two periods and fell below the minimum amount reported by Rose for the maintenance of nitrogen balance in six periods. Supplementation of the diet of one subject by *dl*-methionine and by milk produced no improvement in nitrogen storage.

The content of eighteen amino acids of ten five-day dietary periods has been determined. Of the dispensable amino acids, glutamic acid is furnished most generously and cystine in lowest concentration.

TABLE 4

Average daily intake of eighteen amino acids in ten five-day periods of five subjects and in the same amount of protein of muscle tissue (15)

AMINO ACID	INTAKE IN DIETS SUPPLYING AN AVERAGE OF 70 GM. PROTEIN	70 GM. MUSCLE TISSUE PROTEIN
	gm.	*gm.*
Alanine	3.23	4.76
Arginine	3.23	4.23
Aspartic acid	3.06	3.05
Cystine	0.63	0.99
Glutamic acid	12.13	7.35
Glycine	2.48	4.03
Histidine	1.77	1.88
Isoleucine	3.76	5.95
Leucine	5.27	5.18
Lysine	5.69	6.16
Methionine	1.52	1.65
Phenylalanine	2.90	2.68
Proline	4.84	4.29
Serine	3.55	3.36
Threonine	2.37	2.68
Tryptophan	0.65	0.59
Tyrosine	5.03	2.07
Valine	4.19	3.12

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Thomas Addison—April, 1793–June 29, 1860

The announcement in 1948 that a crystalline form of B_{12} had been obtained from liver by Rickes and associates in this country and by Smith in England was a thrilling event in the history of nutrition. At last the goal was reached in the long search for an active food factor or vitamin that would be effective in the treatment of pernicious anemia. This discovery was a reminder that it was almost one hundred years ago that Thomas Addison described the disease of idiopathic or pernicious anemia. In 1849 he made a brief report to the South London Medical Society on this new type of anemia, and his paper was published in the *London Medical Gazette* of March 15, 1849. He wrote, "For a long period I had from time to time met with a remarkable form of general anemia, occurring without any discoverable cause whatever—cases in which there had been no previous loss of blood, no exhausting diarrhea, no chlorosis, no purpura, no renal, splenic, miasmatic, glandula strumous or malignant disease." He said that cases were always fatal and that the disease "occurs in both sexes, generally but not exclusively beyond the middle period of life." This was part of a paper describing a disease of the suprarenal gland which is still known as Addison's disease. It is probable that Addison did not recognize the importance of his discovery of anemia; he is reported to have lectured on it as early as 1843, while James S. Combe had described a similar condition in 1824.

Little is known about the boyhood of Addison and the exact date of his birth is uncertain, but it probably was April, 1793. He was born near Newcastle, England, the son of a colliery engineer. He worked hard to earn an education and must have been a good scholar because he is reported to have taken his lecture notes in Latin at Edinburgh where he studied medicine and took his degree in 1815.

Addison went to London and worked with the dermatologist, Bateman, and in 1824 joined the staff of Guy's Hospital. He was an able lecturer who lived for his students and his hospital work. His patients received his complete attention, and he would return many miles to revisit a patient if he later thought of anything that he might have overlooked in his diagnosis or treatment.

Addison was a brilliant man and made contributions in many phases of medicine. However, he was shy and nervous, and his efforts to conceal this led many to think him haughty and overbearing. He was not popular with his medical colleagues, and many of his papers were not published because of lack of interest by journal editors. Addison's best known works are those on pernicious anemia and diseases of the suprarenal gland. In collaboration with John Morgan, he wrote the first book in English (1829) on the action of poisons on the living body.

Addison married late in life (1850) and died June 29, 1860.

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Current Comment

TIPS ON TELECASTING

SARAH ELLEN MERRITT WENGER

Formerly Food and Home Editor, Miami Daily News, *Miami, Florida*

It's difficult to see yourself as others see you—and especially on television. If the powers-that-be at your local television station have realized the popularity of anything pertaining to foods, you have already faced the cameras or will do so before long, for the TV executives have learned that dietitians are the experts to contact in the food field.

After the initial knee-shaking session about doing a telecast has passed, you are faced with the awful thought—"What shall I ever do?" There are a few tried and proved facts that will help build a successful program. Some "Do's" and "Don'ts" will help you to come through with a smooth performance whether you are a complete beginner or a seasoned veteran.

First, face the fact that foods are interesting to others. Even those who cannot boil water, eat—and they do so at the usual rate of three times a day. Therefore, the fact is gradually making itself felt that foods have one of the widest appeals to viewers of all ages. Thus, you are blessed with a "sure" subject.

Naturally, the type program you will plan depends on the format of the show under consideration. If you are to do a guest spot on a women's program, you might talk of a practical reducing diet—that's always a good subject.

PROPS

But—don't just talk; have some props. To collect them will take time, but it will more than repay you for your effort. Serve a complete luncheon which is a typical meal for the diet being discussed. Be prepared to tell how many calories there are in the meal and in each serving. Have your table set as invitingly as possible so that your viewer will want to start that diet immediately—rather than tomorrow. It's much easier to talk for 5 min. if you have a pretty table as suggested. It will allow the cameras to "dolly" from you to a close-up of the table and then in further to pick up each serving. Your voice can follow the action of the camera as it moves from dish to dish, explaining all the while why you chose that particular food "for its high protein content which gives you protective calories that satisfy your appetite so that you do not have a desire for more fattening foods."

Selection of props for your program is as limitless as your own imagination. If you are doing a spot on a program to dramatize the interesting work done by hospital dietitians, bring some hospital trays as planned and set up under the direction of the dietitian. If a holiday is near, have some of the special decorations that will be used on each tray served on that occasion. Or, you may ask an interning dietitian to appear in uniform to explain how she assists a patient in planning a special diet. Or, you might bring charts and wall displays used in the out-patient department. The purchasing dietitian might show some of her market orders and food items and inspect them before the cameras as she would do when receiving them at the hospital.

If the spot calls for a quick demonstration of the making of a recipe, plan that as carefully as you would a command performance—it is. Have all ingredients measured and on hand. Use glass bowls and utensils, or arrange with the floor producer to set up mirror shots so that you can show the sauce bubbling as you stir it; or the onions, peppers, and parsley sautéing in melted butter.

TECHNIQUES

To see yourself as others will see you on the screen, watch the monitor. Be careful, though, not to let this be noticed; otherwise, to your viewers you will seem to be staring into some far corner of the studio, and to have completely forgotten them. Watch the signal lights on the cameras telling you which camera is carrying the picture at that moment. Do not look from one camera immediately into another, glance first at your props, or your interviewer, before turning to the "live" camera. That eliminates the rolling-eyes effect that you've noticed at times. All the while you must watch the floor producer from the corner of your eye to catch signals which he will probably discuss with you before the program gets under way.

If you are "on camera" alone, or even if you are being interviewed, plan more material than you think you can possibly use. It's safe insurance; if things go faster than rehearsed, you will need extra material to "stretch" the time allotted you.

After your subject material and props are planned, then you can begin worrying about "What shall I do? How shall I actually *say* these things?" Write a script, but do not memorize your material. Get it organized. This is mandatory if you are using props; otherwise you would not know how to arrange your

props on the table or to stand where they will be photographed. Then *talk* your material—not as a lecturer would present it, but for viewers who are sitting in their living rooms. Viewers have the privilege of tuning in another channel. If you have ever taught, forget all about it; simply visit with your friend on the other side of the camera. Picture one or two people sitting comfortably chatting *with* you. Never allow yourself to think that you are talking *to* someone.

If you are presenting facts—and most food programs do—present them as interesting bits of information, just as you might tell your neighbor of a sale of which you have just learned. That is selling and teaching and making it entertaining at the same time.

Never make the mistake of underestimating the intelligence of your viewers. They may never have heard of a dietitian and may be completely ignorant of what you do; but that does not mean that they have a low I.Q. Remember that you may not know a thing about raising tropical fish either! Plan your information as though you were answering the questions of an intelligent but uninformed person. Thus you will avoid that fatal mistake of "talking down" to your viewers.

Your highly technical training and status as an expert in your field will come through in your material without being obviously dragged into the scene. If it must be mentioned—and there are instances when it is necessary to establish the fact that an expert is voicing the thoughts—let the announcer or your interviewer do that for you; it is much more gracious.

PERSONAL APPEARANCE

Now to answer that question—what to wear. The person directing the program will probably give you some suggestions which should be followed as closely as possible. But if you are told vaguely, "Oh, just wear anything you want," then keep it simple. Solid colors are much better than figures or designs, and medium shades are much preferable to black, dark blue, or white. Remember that the picture on the screen is in values of gray.

Keep your make-up simple also, and take extra care in applying it. A make-up base or pancake helps to assure a more flattering picture. Your hair-do should be simple and the one you usually wear. Resist the temptation to rush to "Michelle" or some other stylist to have a completely new style produced just for your appearance. It will look stiff and unnatural.

Your dress, make-up, and actions should be such that the viewer will remember that "she looked neat, pleasant, and said that more milk really keeps you from looking or growing old as fast." Let your subject be the "star" rather than your costume.

Your outfit must naturally be in keeping with the time and type of program. On a campaign to recruit girls to enter dietetics, you may want to talk in a simply tailored dress, or it may be preferable for you to appear in your uniform. If you are talking about diet, keep your outfit becoming and lacking in fuss; it would hardly be a hat-with-veil-and-white-gloves occasion.

As a last word, let your knees shake. That is perfectly natural; that feeling will be with you every time you face the cameras, even if you do it every day of the week. But if you have planned carefully, collected your props and have them ready, then relax and be yourself, and enjoy facing those cameras—it's really fun.

SCALING HOME RECIPES FOR INSTITUTION USE[1]

Development of recipes in general is not as simple as we would like, according to Pearl Jackson Aldrich, who writes in the January issue of Kelvinator's *Kitchen Reporter*. "Wonderful indeed," she notes, "would be the discovery of a fool-proof conversion factor for changing recipes similar to the one we use for changing degrees from Centigrade to Fahrenheit. However, until only one kind of flour is milled, one kind of shortening is made, one kind of sugar is manufactured, one formula for leavening powders is used, we are faced with too many variables to treat recipe changes in generalities." Mrs. Aldrich, who is Director of Test Kitchen, Michigan State College, East Lansing, points out that even if these articles were all made according to single specifications, we would still have to standardize the hen, control all production of plant growth, and persuade the cow to produce milk according to rigid stipulations. Since none of these things is practical, we must apply controls in areas where it appears more feasible.

Lacking a magic formula for conversion, we must use the next best method of developing recipes; proceeding slowly and systematically, keeping alert to new information, and adapting it to the individual situation by personally testing and evaluating the recipes.

Thickening agents, flavorings, spices, nuts, fruits, leavening agents, and other ingredients are known to give very different results in large- and small-quantity production. It is unwise to generalize about these materials in developing recipes, because the quality characteristics of each ingredient vary greatly. Rather, careful observations should be the guide in changing proportions of ingredients as the yield of a recipe is increased.

Points to be considered in adapting home-size recipes for quantity production are:

(a) Knowing exactly what ingredients are used and in what quantities. The palatability of some home-made products stems from large amounts of ingredi-

[1] Excerpted with permission from *The Kitchen Reporter* published by Kelvinator.

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Fat	12.6 Gm.	8.0 Gm.
Carbohydrate	17.7 Gm.	25.5 Gm.
Calcium	0.24 Gm.	0.5 Gm.
Phosphorus	0.27 Gm.	0.4 Gm.
Iron	1.5 mg.	4.4 mg.
Vitamin A	843 I.U.	1745 I.U.
Thiamine	0.12 mg.	0.7 mg.
Riboflavin	0.45 mg.	1.6 mg.
Niacin	0.2 mg.	6.4 mg.
Ascorbic Acid	2.0 mg.	26.4 mg.
Vitamin D	30 I.U.	150 I.U.
Calories	233	237

*Eggnog nutritive values from Bowes, A. de P., and Church, C. F.: Food Values of Portions Commonly Used, Philadelphia, College Offset Press, 1951, Ed. 7.

†Based on 25 lb. institutional size can.

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ents which add richness, delicacy, and fine flavor. For similar quality, the quantity production manager must know exactly what ingredients were used in the original and duplicate them. Rich milk, cream, eggs, and fine flavorings are often the reason for the flavor and texture of homemade products—and no satisfactory substitutes for fine ingredients exist.

(b) Checking the proportions of ingredients with a standard, large-quantity recipe for a product of similar type. In the case of a chocolate cake failure, used as illustration, this result could have been anticipated, because the amounts of sugar, milk, egg, and chocolate were low in comparison with proven, quantity recipes for chocolate cake.

(c) Making the recipe first in the original amount, following instructions exactly, and recording observations carefully. Excellent sources of information on balancing cake formulas are available (1, 2) against which the recipe can be checked. Balancing a recipe, rather than being a simple mathematical equation, involves a fairly complex interrelationship based on limited variation or tolerance range among ingredients. Mrs. Aldrich even characterizes a knowledge of the multiplication tables as one of the most dangerous pieces of equipment a food manager can have unless she is aware of the limitations of this method for increasing recipe yield.

(d) Progressing by slow stages in building up the recipe, keeping in mind the appearance of the product of the original "trial run" at every stage of production. Mixing time and speeds must be adapted to produce a comparable product at the different stages of mixing the larger quantity. Mixing a batter for 3 min. on "high" speed with a home-size mixer may not give the same result as mixing the batter for 3 min. on "third" speed in a 60-qt. institution mixer. If the baker first tries the original small-quantity recipe and obtains the product desired, then the recipe may be doubled and tried. If the results are good, it can then be built up to 100 portions, and later increased by multiples of 100. If increasing the quantity results in a loss of homemade goodness at any stage, then go back a step and experiment.

(e) Checking scales for accuracy at frequent intervals. Discrepancies in weight may result in wrong proportions among ingredients and can make a perfect recipe fail. Improper scaling may cause cakes to "settle" or shrink if the batter is overweight or underweight, respectively, and is baked for the specified period. Pastry scaled too heavily yields a tough, thick crust unless it is baked so long that it discolors. Overbaking and underbaking are also warned against, and the cook must allow for the drop in temperature which follows filling an oven with cold materials.

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Army Announcements Concerning Dietetic Personnel

The following have been appointed to the Regular Army, Women's Medical Specialist Corps:

Capt. Thelma Alta Harman, R-10092
2nd Lt. Jeanne Sherburne, R-10157

The following dietitians have received initial appointments in the Women's Medical Specialist Corps and are on active military duty:

Capt. Mary L. Davidson, R-2139
Capt. Helen H. Price, R-20151
1st Lt. Barbara A. Jones, R-20255
2nd Lt. Janice C. Arundel, R-2605

The following reserve officers have received temporary promotions:

Second Lieutenant to First Lieutenant

Bervian A. Barfield, R-20051
Ruth E. Gilbert, R-20001
Doris E. Knights, R-20002
Barbara G. Small, R-2606

The following officers have been honorably discharged from the Regular Army:

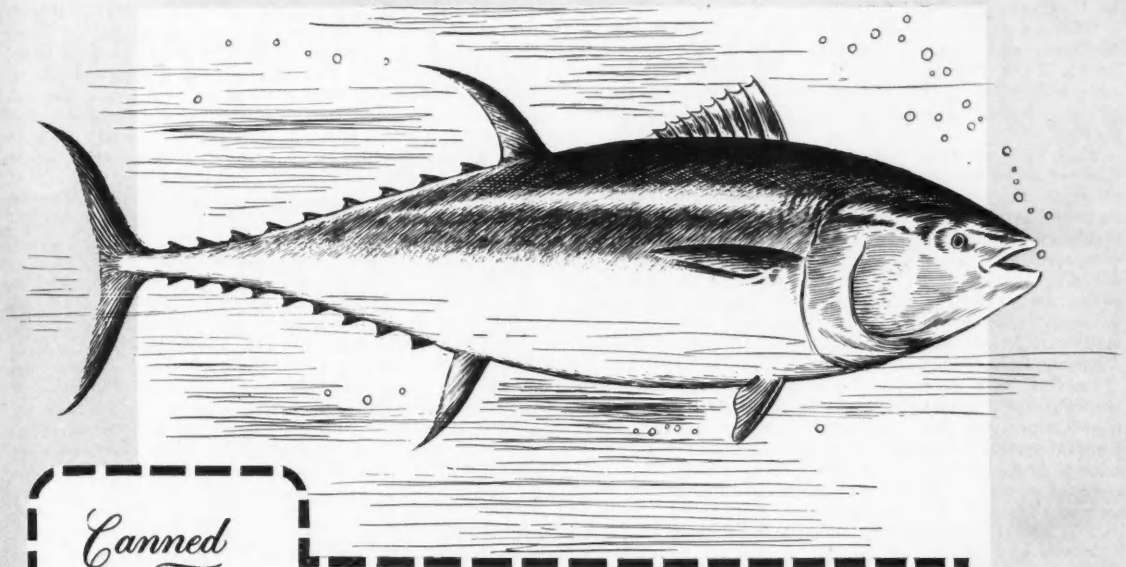
Capt. Jessy P. Andrews, R-10104
Capt. Catherine M. Kerzetski, R-10119
Capt. Elizabeth M. Marshall, R-10075
Capt. Solveig P. Matlock, R-10048

The following Reserve officers have been relieved from active duty:

1st Lt. Bervian A. Barfield, R-20051
1st Lt. Allen B. Fleming, R-2543
1st Lt. Mary Sue Lowe, R-2010
1st Lt. Violet S. Koskela, R-2230
1st. Lt. Naomi Meilicke Kunkel, R-2469
1st Lt. Elizabeth A. Peterson, R-2490
1st Lt. Jeanne Poehlman, R-2572
1st Lt. Willa A. Reed, R-2333
1st Lt. Virginia Boyd Rogers, R-2415
1st Lt. Oweta Ross, R-2486
1st Lt. Dorothy E. Taylor, R-820
1st Lt. Avis H. Thyge, R-2424

Reserve officer, Capt. Mary K. Behlen, R-8, has been called to active duty.

For your food file—
interesting facts on canned tuna



Canned Tuna

Nutritive Values of 107 grams Serving

Nutrient	Quantity of Nutrient Per Serving	Approximate Percentage of Daily Recommended Allowance*	Approximate Percentage of Minimum Daily Requirement**
Carbohydrate (available) (1)	0.90 gm.	—	—
Fat (1)	17 gm.	—	—
Protein (1)	24.0 gm.	34	—
Caloric Value (1)	255 calories	9	—
Calcium (1)	8.0 mg.	1	1
Phosphorus (1)	220 mg.	—	30
Iron (1)	1.2 mg.	10	12
Vitamin A (2, 5)	27 I.U.	1	1
Thiamine (3, 5)	0.048 mg.	3	5
Riboflavin (4, 5)	0.12 mg.	7	6
Niacin (3, 5)	12.4 mg.	83	—
Vitamin D (5)	234 I.U.	58	58

*Percentage based on Recommended Daily Allowance for physically active man, except for Vitamin D values which are for children—National Research Council. **Percentage based on Minimum Daily Requirement for adult over 12 years of age—Food and Drug Administration.

1. Food Research 11, 391 (1946)
2. J. Nutrition 28, 107 (1944)
3. J. Nutrition 28, 117 (1944)
4. J. Nutrition 28, 123 (1944)
5. J. Nutrition 34, 633 (1947)

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Book Reviews

Health Resources in the United States—Personnel, Facilities, and Services. By George W. Bachman and Associates. Washington, D. C.: Brookings Institution, 1952. Cloth. Pp. 344. Price $5.

This report is a compilation of data on the personnel, facilities, and services available to serve the nation's health. Three years of research went into the study. The book is divided into three parts. Part I reviews the state of the nation's health during the first half of the twentieth century.

Part II is an inventory of personnel providing health services. It covers the major professional groups as well as other auxiliary health personnel. (The statistical tabulations indicate that the rate of growth for dietitians and nutritionists has been 42 per cent from 1940 to 1950, as compared with an average increase of 17 per cent for doctors, dentists, and nurses.) An attempt is made to define the work of dietitians and nutritionists, and their academic training is discussed briefly. A statement is made concerning qualifications for membership in The American Dietetic Association.

Part III is a survey of the vast and complex health facilities and services that have been developed to meet health objectives. The inventory discusses in detail the hospital system as a whole, with special emphasis on the general hospital and recent trends in the expansion of hospital construction; an account of the specialized resources developed to meet growing problems of mental illness, cancer, heart disease, diabetes, and other chronic illnesses; and special programs for certain beneficiary groups, such as military personnel, veterans, Indians, and industrial workers.

This volume is an excellent source of factual material concerning the nature and extent of the available health resources and should be of value to the layman or professional worker who is interested in or working with the health problems. The many tables add greatly to the value of the survey. In the reviewer's opinion, the volume is a reference work indispensable to the library of all persons concerned with the health of the nation.—*Geraldine Piper, Nutrition Consultant, State Aid Branch, Division of Chronic Disease and Tuberculosis, U. S. Public Health Service, Washington, D. C.*

Food in Health and Disease. By Katherine Mitchell and Margaret Cowden Bernard. 5th ed. Philadelphia: F. A. Davis Company, 1953. Cloth. Pp. 688. Price $4.25.

Food in Health and Disease is written by two dietitians to be a textbook for student nurses. It includes three main divisions: nutrition, diet therapy, and laboratory manual.

The subject matter is written in a crisp, clear-cut manner. The sentences are not long and involved but straightforward and positive. The logical and easily understood reasons given for the different phases of diet therapy can be used by student nurses in explaining therapeutic diets to their patients.

This edition treats certain topics not dealt with in former issues: the B-complex factors—pyridoxine, pantothenic acid, folic acid, biotin, vitamin B_{12}, and inositol; vitamin P; anti-vitamins; preoperative and postoperative diets; diets in diseases of the nervous system; NPH and globin insulin; hypoglycemia; and urinary calculi.

The introductions to many chapters have been enlarged. More recent concepts regarding pernicious anemia are given. For diabetic diets, the exchange method of calculation approved by the American Diabetes Association, The American Dietetic Association, and the U. S. Public Health Service is presented. In the laboratory manual more directions and recipes are given for the preparation of rice, macaroni, dried milk, and cultured milk. Tables which have been added include: amino acid content of foods; the National Dairy Council charts showing the food value of a good and a poor breakfast, lunch, and dinner; a handy guide to food groups, for use in planning family dietaries; short method of dietary analysis; cholesterol composition of foods; and sodium and potassium content of foods and public water supplies. In the table of food composition, fiber and ash have been added.

One questions: the elimination of tender red meats from the "light" diet; the omission of spices from the soft diet; the necessity of the table of fruits and vegetables containing 3, 6, 9, 12, 16, and 18 per cent carbohydrate; the advisability of the 800-calorie diet or the 400-calorie starvation diet; the serving of milk on a clear fluid diet; the nourishing quality of jellied broth; the exchange value of the special recipes for diabetic dishes; and the omission of a space on the diet history for recording foods eaten between meals. Only one sample of a sodium-restricted diet (200 mg.) is given. More discussion could have been given to the theories of treatment of tuberculosis.

Special commendation should be given the authors for: the excellent pictures, the diet history, the outline for dietary case study, the suggestions for instructing diabetic patients, and the variety of recipes for vegetable preparation.

The outline for the nurses' course with the correlation of class and laboratory as developed by the authors is similar to an outline published earlier.—*Berdena Rosenow, Dietitian, University of Kansas Medical Center, Kansas City, Kansas.*

What to Cook for Company. By Lenore Sullivan. Ames, Iowa: The Iowa State College Press, 1952. Cloth. Pp. 512. Price $3.95.

What fun it is to review a book such as this one! *What to Cook for Company* will be fun for you to read, too, as it is a collection of recipes and menus for all occasions by Lenore Sullivan, Professor of Institution Management at Iowa State College. Her world-wide search for unusual dishes has given Miss Sullivan a fine basis for her book. Added to this are hundreds of family recipes chosen and contributed by students in her catering classes.

Really authentic pizza, Caucasian shashlik, kolacky, brioche, garbacho, Dhall curry with coconut rice, butterkuchen, and food from nearly every nation is included. Because students come to Iowa State College from everywhere, the regional dishes famous in the United States are also included.

A whole section of special party, regional, and national menus is topped off by an excellent food dictionary.

But a list of "what it contains" does not do justice to *What to Cook for Company*. This book demonstrates that one of the soundest approaches to good nutrition in institution or home is attractive food—good to see, good to eat, and fun to prepare.—*Virginia Monahan Bayles, Boulder, Colorado.*

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The Venezuelan *Dietista*

Three years ago the word *dietista* was unknown in Venezuela to anyone who was not actively studying in the field of nutrition or public health. Today it is almost a household expression. This is due to a tremendous publicity program by the Institute of Nutrition and the International Council of Alimentary Education. Perhaps the man on the street in Venezuela has a better understanding of the world "dietitian" than his counterpart in the United States, but will the Venezuelan dietitian be able to live up to her publicity? How will the public react to her in action? In November 1952 some twenty-five girls were the first graduates of the National School of Dietitians. Since their graduation, the newspapers have carried individual pictures of these girls with personal interviews giving their attitudes and aspirations in the profession. What the newspapers didn't tell is that none of the girls is anxious to become a hospital dietitian, although this is the field where they are needed most desperately.

In beginning her profession as a hospital dietitian, the Venezuelan girl must face two tremendous difficulties. Primarily, according to U. S. standards, she is not yet prepared either technically or, more important, practically for her new position. She has had an intensive two-year course, including many of the professional subjects we are familiar with in our own colleges and universities. Her mind is occupied with hundreds of theoretical principles. To enter the school, she must be a graduate teacher, nurse, social worker, or what is equal to our high school graduate. (Incidentally, the name for a high school graduate is *bachiller* and at this very moment many of the doctors at the Institute of Nutrition believe that the bachelor's degree in the United States is the same.) The practical experience of the dietitian here has been limited to a few weeks in government schools, dining rooms, public health clinics, and three weeks in a hospital.

The second problem which faces the hospital dietitian is the *economa*, who is an administrator responsible in most institutions for the administration of the kitchen, the laundry, and housekeeping; in some cases, where she has had special training, she is also the accountant. Because of her wide variety of duties, it would seem an easy matter for her to delegate the responsibilities of the dietary department. But here we face the fact that the *economa* by dint of her years of experience is a more able administrator than the young dietitian. The *economa's* menus may be entirely carbohydrate, the ulcer patient may be eating black beans, refrigeration may be lacking or out of order, the kitchen walls may be covered with cockroaches, and vultures may feed on the back step, but she balances the budget and keeps peace among her employees and patients. If the *economa* is removed and an especially eager dietitian is given complete reign, the nutritionally adequate meals and the milk and cream for the ulcer patient cause the food cost to zoom and the patient to complain bitterly at the disappearance of black beans. The new system of scouring pots and pans, sterilizing dishes, and boiling drinking water causes a catastrophe among the employees. The poor dietitian, even if she is still enamored of her profession, is already Public Enemy No. 1 in the hospital. Is it any wonder that, full of suggestions for improving the normal and therapeutic nutrition but with no power to enforce her will, the dietitian becomes the tool of the *economa*?—*Andrea Stone, Instituto Nacional de Nutrición, Caracas, Venezuela.*

Life in Saudi Arabia

In Dhahran, Saudi Arabia, Aramco Corporation maintains two hospitals—one called "Senior Staff" for American employees (a 30-bed hospital), and the Health Center for non-American patients, which is a 130-bed unit.

In the Health Center, all of the nurses are male—mostly Indians, although some Saudis have been trained in Aramco's nursing school. The only exception is the women's ward, where the nurses, except the head nurse who is an American, are all Indian girls. An Arab woman, of course, cannot be seen by any man except her husband. The doctors are American, Dutch, and Syrian women on this ward. The medical staff for the rest of the hospital has a few American men, some Palestinians, Indians, Dutch, and Syrians. There is a large staff, as the out-patient department sees as many as five hundred patients a day.

We serve all the usual diets at the Health Center, but for a great variety of nationalities. The Saudi Arab who has been with the company any length of time has developed a liking for American-style food, but the Arab right off the desert likes rice, which he rolls in his fingers to form a ball, then dips it in his *sarona*—a highly spiced dish which is really a meal in itself, consisting of meat stock with a few pieces of meat, vegetables, and spices, chiefly curry. For most of the Bedouins, this *sarona* over rice is the

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meal three times a day, but Arabs living in towns have a greater variety of foods available, to add extra meat and vegetables to the diet. The Palestinian employees like the same food as the Saudis but not all mixed up. The Indians use much curry, and the Pakistanians favor an American-style diet. There are Italians, too, who like spaghetti for every meal. Our regular diets consist of meat (lamb or beef), poultry, or fish; rice with *sarona*, spaghetti, or potato; one vegetable (raw as often as possible), canned fruit, bread and jam, and coffee, Service is from a heated truck which goes from bed to bed.

We have a special diet kitchen from which we serve quite an array of therapeutic diets—diabetic, bland, ulcer, high-protein, low-salt, low-fat, and routine liquid and soft diets. When we first started serving soft diets, the Arabs eyed the puréed vegetables and strained meats (we use commercial baby and junior foods) with suspicion, but now they dip the rice in them, just as they do for the regular meals. From this kitchen, we also serve the trays for the Italian patients and the "intermediate" patients, who are the most skilled workers of all nationalities. These patients prefer a more Western type of diet, although many still like their rice with *sarona*. All of the therapeutic diet trays are taken to the patients by ward men, the temperature of the food here not being of the great importance it is in the States; "hot food hot and cold food cold" hasn't "caught on" here as yet.

The Saudis who work in the kitchens do a fine job. They learn to speak English almost overnight, and many can now read English, too They weigh the diabetic diets most carefully, and although I write the diets in English, seldom do they have to ask about what is written. They are most anxious to learn, too. One day, the head cook in the diet kitchen asked me why I wrote "beet and onion salad" rather than "beets and onions salad," and I must confess, I found that a bit difficult to explain!

The Senior Staff Hospital for American employees is run much as in the United States. It is a series of portable houses which have been converted to a quite satisfactory hospital. The kitchen is in one of these, utilizing a regular kitchen plus what was the dining room. The one-time living room serves as the dining room for ambulatory patients, nurses on duty, and the dietitian. The hospital proper is across a driveway, and the trays are carried over after being served in the kitchen. It is a short haul, so the food doesn't suffer.

The opposite side of the building is an annex where pregnant American women from other American cities are housed for two weeks before their babies are due. The nearest of the other cities is a good hour's drive over very poor roads, and the doctors hospitalize their patients early to avoid emergencies.

About July, we expect to begin moving into a new hospital. At first, the Senior Staff Hospital will move into the new quarters, followed gradually by the Health Center, as other wings are completed. The present Health Center facilities will then be used for an enlarged unit for Arab women and children, who are gradually being won over to the value of American-type hospitals.—*A. Elizabeth Whitney, Dietitian, Arabian American Oil Company, Dhahran, Saudi Arabia.*

The Dutch Flood

Following the flood disaster which struck Holland this winter, Dr. Margaret A. Ohlson, Past-President of A.D.A., received the following letter from Theodora v. Schaik, a Dutch dietitian who received her master's degree from Michigan State College and is a member of The American Dietetic Association. Miss v. Schaik says:

"It is a really crushing blow which the inhabitants of the provinces of Zeeland, West-Brabant, and South-Holland isles have had to suffer. But, thanks to the enormous and immediate help given by so many other countries, 80,000 people could be rescued from the threatening water. The American Army in particular played an important role in this rescue work by carrying out air-droppings and by rescuing hundreds of people from the roofs of frequently partially destroyed houses, on which they had sometimes been sitting for days in cold and storm, wet to the skin and without food.

"It has been a great experience to see how much generous help came from America and other countries. We shall not forget this very soon. As a result of these activities, all the people who have been evacuated could be fully supplied with food and clothes. Meanwhile, the men here are already busy rebuilding and repairing the dykes, and 2000 Americans have joined in this work.

"Only after the return of peace and quiet can we survey the food damage to its entire extent. First, we must give our full attention to the people who have been physically, but still more psychologically damaged by all the misery and privations. I daresay it will take a long time before they will have recovered completely. But it will take still longer to repair the damages done to our agricultural industry. A considerable quantity of farms, live cattle, and agricultural products has been lost. It will take the soil two years to become dry and arable again, and we cannot expect to have a crop before then.

"In order to give those who have lost all their property new furniture, household utensils, new farms, and new cattle, we have created the 'Nationaal Rampen Fonds' (National Disaster Fund) into which everybody pays a certain amount and through which we hope to rebuild our devastated country in the years to come."

(Advertisement)

The Vital Story of Bread Enrichment

by Science Writer

1951 marked the Tenth Anniversary of the white bread and flour enrichment program in the United States. This ten-year experience proved the success of a program which used the combined talents of bakers and millers, nutritionists and physicians, diet experts and chemists . . . an inspiring example of how a good food is made better in the American way of free initiative and cooperating effort. In fact, the value of enrichment is so highly regarded that over one-half of our states and several territories have already passed laws making its use mandatory in all white bread and family white flour sold commercially in those areas. The Council on Food and Nutrition of the American Medical Association is on record as supporting enrichment as is the Food and Nutrition Board of the National Research Council.

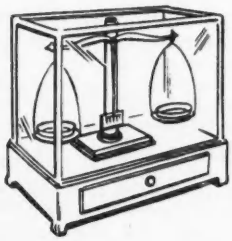
> "It is encouraging and gratifying to compare the health of the American people today with what it was 10 years ago," said Elmer L. Henderson, M.D., President of the American Medical Association.
>
> "And I do not think it is too much to say that a very important part of the more buoyant health and the increased mental and physical vigor the American people enjoy today can be directly credited to the enrichment of bread with essential vitamins and minerals."

The skeptics, "food faddists," and others who demanded proof that enrichment benefited the public health were again answered emphatically when the dramatic results of a long term nutritibnal study in Newfoundland were made public.

What is enrichment? Before answering that question, let's note two indisputable facts.

Fact No. 1—Americans generally want beautifully fine, white bread.

Fact No. 2—In milling and processing wheat to get this white flour which the public demands, some nutritional values are unavoidably lost.



Enrichment is the process which restores the following vital vitamin and mineral values to the finished white bread or milled white flour: thiamine, riboflavin, niacin, and iron. Calcium and vitamin D may also be added as optional ingredients.

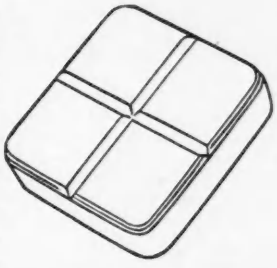
Many vitamins have been isolated in the laboratory so that the pure substance could be studied. Brilliant chemists have "built" duplicates of them by complex processes. They are identical chemically and biologically with those existing naturally. A vitamin is a vitamin regardless of its source, just as salt is salt whether it comes from a mine or is evaporated from the sea. Large-scale manufacturing efficiency permits vitamins to be sold at a lower cost than if they were extracted from natural sources.

These are the vitamin and mineral factors which are used in white bread and flour enrichment:

> **Thiamine**—also called vitamin B_1. This vitamin helps to build physical and mental health. It is essential for normal appetite, intestinal activity and sound nerves.
>
> **Riboflavin**—also called vitamin B_2. This vitamin helps to keep body tissues healthy and to maintain proper function of the eyes. It is essential for growth.
>
> **Niacin**—another "B" vitamin, is needed for healthy body tissues. Its use in the American diet has done much to make a serious disease called pellagra disappear.
>
> **Iron**—is the mineral used in enrichment. It is essential for making good, red blood and preventing nutritional anemia.

It is possible to enrich bread by two basic methods. One involves the use of flour which is enriched at the mill in accordance with the Federal Definitions and Standards of Identity. The other method, which is widely used by bakers, merely requires the addition of a small wafer.

The Hoffmann-La Roche people manufacture vitamins literally by the tons. To do this they must use amazingly complex processes with scientific production controls and the latest equipment, which can fill a building a city block square and many stories high. Roche combines the enriching ingredients in a form known as the Square wafer. It is distributed by leading yeast company salesmen throughout the United States.



The Square wafer for bread enrichment measures 1¼ inches across. It is ¼ of an inch thick. Yet it contains enough thiamine, riboflavin, niacin and iron to enrich 100 pounds of flour so that the resulting product will meet the requirements of all State enrichment laws with an ample safety margin. The formula is as recommended by the Scientific Advisory Committee of the American Institute of Baking.

Here is a suggested statement for white bread labels or wrappers which has the approval of the A.B.A. and the A.I.B.:

> 8 ounces of this enriched bread supplies you with at least the following amounts of your minimum daily requirements for these essential food substances: Thiamine (Vitamin B_1) 55%; Riboflavin (Vitamin B_2) 17.5%; Niacin (another "B" Vitamin) 5 milligrams; Iron 40%.

This information is published by the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. Reprints of this entire article as presented to the baking industry are available on request.

Current Literature

Contributed by Mildred Bonnell and administrative interns, University of Washington, Seattle; Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Jacqueline Fitzmorris, Dietetic Intern, Veterans Administration Center, Los Angeles; Elizabeth H. Tuft, Wesley Memorial Hospital, Chicago; and the Journal staff

ACTA SOCIETATIS MEDICORUM UPSALIENSIS

Vol. 57, Nos. 5-6, 1952

* Fat absorption studies IV. Polyunsaturated fatty acids in the feces of infants. L. Söderhjelm.—p. 438.
* Fat absorption studies V. Polyunsaturated fatty acids in fetal organs. L. Söderhjelm.—p. 448.

Fatty Acids in Infants' Feces. The relative occurrence of polyunsaturated fatty acids in the feces of breast- and bottle-fed infants was determined, showing that feces of the former group contained much more unsaturated fatty acid, the fat of cow's milk being less readily absorbed than that of human milk. To check the possibility that differences in bacterial flora known to occur in the two types of feeding might influence both the amount of fat and the saturation of the fatty acids, aureomycin was administered to both groups of infants. Results indicate that bacterial synthesis can be excluded as a source of unsaturated fatty acids in the feces.

Fatty Acids in Fetal Organs. No conclusive evidence exists regarding the human requirement for "essential" fatty acids, although it has been indicated that these acids are probably not synthesized within the human organism and must be provided in the diet. Inasmuch as long periods without fat are necessary to produce signs of fat deficiency even in small infants, the conclusion seems warranted that reserves are present at birth. To study the phenomenon, polyunsaturated fatty acids in different organs of fetuses at different stages of development have been determined. In all organs examined, appreciable values for hexaenoic and tetraenoic acids were found, but not for pentaenoic acids. Dienoic acids were found in most organs from all the fetuses, whereas trienoic acids were not found regularly. It appears that every newborn infant has a store of polyunsaturated fatty acids, but whether they are supplied by synthesis or passage through the placenta is yet undetermined.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 224, December, 1952

* Peptic ulcer: the effect of anticholinergic drugs on the mechanism of pain. W. L. Palmer, F. Vansteenhuyse, and J. B. Kirsner.—p. 603.
* Effects of a new cholinergic blocking agent (SKF-1637) on gastric motor and secretory activity. E. C. Texter, Jr., G. J. Baylin, C. W. Legerton, Jr., and J. M. Ruffin.—p. 612.

Vol. 225, January, 1953

* Cation exchange resin therapy in patients receiving cortisone or ACTH. L. Greenman, F. A. Weigand and T. S. Danowski.—p. 1.

Anticholinergic Drugs for Ulcer Pain. A series of twenty-six experiments on eighteen patients was conducted to test the pain-preventing properties of anticholinergic drugs when used in treating peptic ulcer. In twenty-three of these experiments, the drugs failed to prevent onset of pain after the administration of acids. There was no direct relationship between pain and gastric or duodenal motility. Relief of pain which has been noted clinically is probably due to decreased area of ulcer exposed to acid attack.

Blocking Agent for Gastric Activity. Studies of the new cholinergic blocking agent—SKF-1637—have shown that it has a definite depressing effect on gastrointestinal motility and gastric secretion. Administered parenterally, it is effective in relieving ulcer pain with a minimum of side effects. Its role in long-term management of peptic ulcer has not yet been demonstrated.

Resin Therapy with Cortisone and ACTH. Five children suffering from rheumatic heart disease who were being treated either with cortisone, ACTH, or both were studied. Each ingested 80 gm. of a synthetic exchange resin for forty-eight to sixty-three days. Laboratory tests showed that the resin did not prevent the alkalosis or hypochloremia resulting from the use of cortisone or ACTH. Potassium released from ingested resin did result in some increase in the amount of assimilated potassium. Fecal sodium was somewhat increased by the resin, but not in sufficient amount to reduce significantly the edema of the patients on cortisone or ACTH therapy who were eating an unrestricted diet.

AMERICAN JOURNAL OF MEDICINE

Vol. 14, January, 1953

* Present status of atherosclerosis as a derangement of lipid metabolism. Editorial. A. B. Gutman.—p. 1.

Atherosclerosis and Lipid Metabolism. Until recently it was believed that the cholesterol of the plasma and tissues was derived largely, if not entirely, from ingested, preformed dietary cholesterol. As our information increases, the cholesterol intake seems less and less important, at least within the ordinary limits of human dietary consumption. It is now known that most of the body cholesterol is synthesized at a lively rate from fat, protein, and carbohydrate of the diet. It follows, then, that eliminating preformed cholesterol from the diet is just a gesture, probably futile. It also follows that it is impossible, by dietary regulation, to block altogether the biosynthesis of cholesterol. Nevertheless, restriction of caloric intake may decrease the magnitude of cholesterol biosynthesis, and such restriction seems prudent, even if its efficacy in preventing atherosclerosis is as yet unestablished.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 171, November, 1952

Factors influencing cholesterol absorption. K. S. Kim and A. C. Ivy.—p. 302.

ANNALES MEDICINAE EXPERIMENTALIS ET BIOLOGIAE FENNIAE

Vol. 29, Fasc. No. 3, 1951

* On phytagglutinins present in mushrooms. J. Elo, E. Estola, and N. Malmström.—p. 297.
* State of vitamin C nutrition in erythema exudativum multiforme. R. Pätiälä and T. Raekallio.—p. 328.

Vol. 30, Fasc. No. 1, 1952

A note on the determination of fructose and glucose by the Somogyi method. M. J. Karvonen and O. Somersalo.—p. 31.

Vol. 30, Supplementum 1, 1952

On the peptic digestibility of some infant milks and milk mixtures in vitro. H. Kalliala.

Phytagglutinins in Mushrooms. Various species of fungi were investigated to determine their agglutination ability on the red corpuscles of different human blood groups. Of the 139 species studied, 36 caused agglutination, 13 hemolysis, and 78 failed to react. The other 12 species varied in the mode of reaction of different specimens of one and the same species, sometimes yielding agglutination, sometimes hemolysis or non-agglutination. The reactions, in general, were unspecific.

Ascorbic Acid and Dermatosis. Fourteen cases of erythema exudativum multiforme were studied—eight with the true form of the disease and six with a similar condition caused by sulfonamide therapy. In all subjects, ascorbic acid serum levels and urinary ascorbic acid were lower than in forty-three controls. Administration of intravenous ascorbic acid or oral supplements resulted in recovery. In the true form of the disease,

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it is not known whether ascorbic acid deficiency is the cause or the result. In cases following sulfa therapy it seems probable that there is a causal correlation between hypovitaminosis C and erythema, and administration of ascorbic acid apparently reduces the toxicity of sulfa drugs.

ANNALS OF INTERNAL MEDICINE

Vol. 37, December, 1952

* Diet and atherosclerosis. L. M. Morrison.—p. 1172.

Diet and Atherosclerosis. The influence of a low fat-low cholesterol diet on reducing mortality from coronary arterial disease is reviewed. In those countries which had reduced fat and cholesterol consumption during the war years, there was a decreased incidence of deaths from coronary atherosclerosis. The problem of atherosclerosis is a complicated one and the importance of such factors as heredity, the role of the liver in the regulation of lipid and lipoprotein metabolism, the cholesterol-phospholipid ratios, serum albumin and globulin relationships, and lipid enzymes, must be considered in planning a therapeutic program.

ARCHIVES OF INTERNAL MEDICINE

Vol. 91, January, 1953

* Parallel relation of hyperglycemia and hyperlipemia (esterified fatty acids) in diabetes. E. F. Hirsch, B. P. Phibbs, and L. Carbonare.—p. 106.

Hyperglycemia and Hyperlipemia in Diabetes. A series of diabetic patients made hyperglycemic by withholding insulin or increasing the diet showed a rise in the esterified fatty acids of the blood which paralleled closely in time and intensity the increase of the blood sugar. When the blood sugar was reduced to normal with insulin, the lipid fraction also returned to normal. Cholesterol determinations on the blood made coincidentally with the sugar and fatty-acid analyses disclosed no significant or corresponding fluctuations. According to current views, the maintenance of blood lipids of diabetic patients at normal levels is significant in delaying vascular disorders. This control can only be accomplished when the blood sugar is kept within normal limits.

THE BRITISH JOURNAL OF NUTRITION

Vol. 6, No. 4, 1952

* Nicotinic acid, pantothenic acid and biotin in fruits, vegetables and nuts. D. P. James.—p. 341.
* Diet in relation to renal and cardio-vascular disease.
  Salt and hypertension. D. A. K. Black.—p. 428.
  Diet and chronic renal disease. M. H. Roscoe.—p. 432.
  Diet in heart disease. R. M. Fulton.—p. 435.

Salt and Hypertension. The theory has been advanced that the over-production of salt-retaining adrenal steroids contributes to the condition of essential hypertension. Five hypertensive patients, however, did not conserve sodium more efficiently than normal subjects when placed on a low-salt diet.

Diet in Renal Disease. Treatment of chronic nephritis consists of a high-protein intake to improve the plasma-protein concentration, and a low-salt intake in the hope of reducing edema. When renal failure occurs in cases of hypertension treated with a low-salt diet, the salt deficiency may be more dangerous than the high blood pressure. The conflicting needs in treatment of this condition are best met by a daily fluid intake of about 2 liters with a low-protein diet to which has been added about 5 gm. extra salt after cooking. No effective treatment is known for the anemia of renal failure, which, unlike the anemia of chronic nephritis, is not due to protein deficiency.

Diet in Heart Disease. Although severe dietetic restriction is unjustified in the treatment of heart disease, diet can play a part in therapy. A tendency to edema may be prevented by avoiding salty foods, beer, and added salt at the table. Perhaps the most important contribution of dietetics in this disease is the control of obesity on the assumption that a partly damaged heart will be more efficient if it has less weight to carry. Dietary restriction of fat may be of even more fundamental importance in cases of coronary atheroma, which is particularly common in conditions associated with high blood cholesterol, although there is no proof as yet that the condition is specifically connected with high-fat diet.

BRITISH MEDICAL JOURNAL

No. 4799, December 27, 1952

* Suppression of malaria (*P. berghei*) by milk. B. G. Maegraith, T. Deegan, and E. S. Jones.—p. 1382.

No. 4801, January 10, 1953

Food supply, body weight, and activity in Great Britain, 1943-9. J. M. Harries and D. F. Hollingsworth.—p. 75.

Suppression of Malaria by Milk. In this experiment it seems clear that milk contains a factor that can inhibit or restrict the development of the asexual phase of blood-transmitted *P. berghei* in the rat and mouse. This seems to be the first time a dietary factor has been shown to have a suppressive effect on a protozoal infection. Whatever the nature of the suppression, it is likely to lead to further information regarding the metabolism of the parasite. It should be noted that severe malaria is not often seen in very young infants, yet there is also other evidence indicating the existence of a factor in milk that is protective against certain virus infections.

CEREAL CHEMISTRY

Vol. 30, January, 1953

* Flavor of bread. J. C. Baker, H. K. Parker, and K. L. Fortmann.—p. 22.

Bread Flavor. The flavor of bread, a primary factor in the food's appetite appeal, has three broad sources: ingredients, fermentation, and baking. New approaches to flavor improvement indicate that good results may be obtained by avoiding too fine a crumb and excessively large volume, and by altering baking to affect production of aldehydes, thus controlling the extent of browning. Improvements are also achieved by increasing flavor components arising from amino acids and by retention of volatile flavor components in the crumb through faster baking and quicker wrapping.

DIABETES

Vol. 1, November–December, 1952

* Degenerative vascular complications in juvenile diabetes mellitus treated with "free diet." Y. Larsson, A. Lichtenstein, and K. G. Ploman.—p. 449.

Vol. 2, January–February, 1953

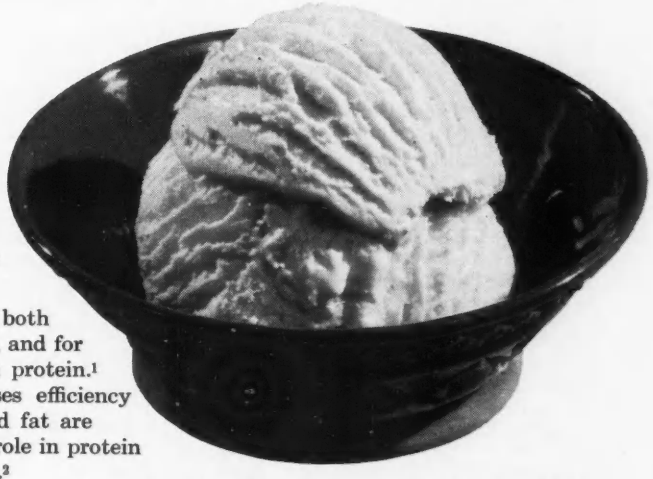
* Results of a screening program for diabetes mellitus. R. Harwood.—p. 43.

Vascular Complications and Diet. As a result of insulin therapy, the incidence of coma and infection resulting in death for children with diabetes was decreased. However, with increased longevity, vascular complications were found to be associated with the disease. The complications are generally believed to be aggravated by treatment that permits hyperglycemia and glycosuria. To test the theory, a group of Swedish children with diabetes received controlled insulin treatment without dietary restrictions, and their vascular conditions were compared with those of patients on controlled diets. The conclusion is that degenerative vascular complications, such as ocular changes, diabetic nephropathy, and arteriosclerosis, are not circumvented by control alone. Apparently treatment with a free and normal diet, combined with adequate insulin therapy and regular supervision, was as satisfactory in protecting these patients against vascular complications as was treatment with measured diet for the other group. It may, therefore, be thought to be preferable since it offers the chance for a more natural life.

Diagnosing Diabetes. During the two days of the 1951 Diabetes Fair in Boston, Massachusetts, 2280 urine samples and 888 blood samples were tested. Persons tested classified themselves as those who thought they had had sugar in the urine, those who thought they had not, and those who were doubtful. The majority of the known diabetics were under active treatment, although some had allowed treatment to lapse for as long as ten years. Of the believed non-diabetics, 3.6 per cent showed both glycosuria and hyperglycemia, and among the doubtfuls the percentage of positive tests was very high. Those with abnormal tests were advised to see their own physicians, follow-ups indicating that 70 per cent accepted the advice. In each of fifty cases in which the diagnosis was confirmed, the patient was given a diet prescription and in twenty-two instances insulin was also advised. An additional forty-seven persons were given diet prescriptions, which, in many cases, were for simple obesity. Since most of those whose physicians made no definite diagnosis were, nevertheless, placed on a diet, it seemed that some physicians

For normal growth in children . . .

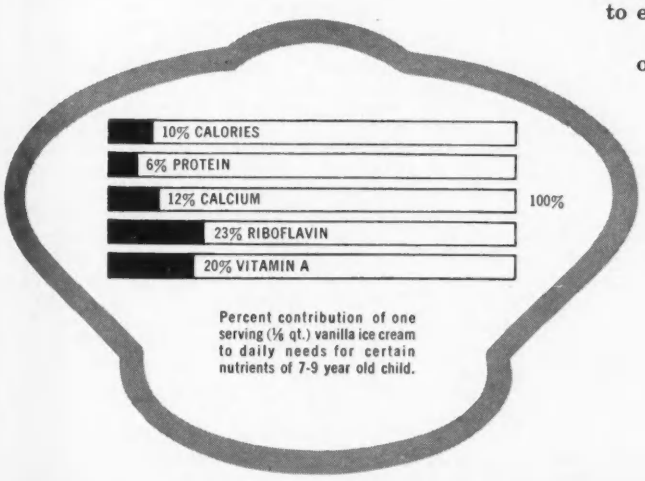
ICE CREAM plays an important role in many children's diets because of its nutrient content and appetite appeal. For normal growth in children the diet must supply fat, carbohydrate, protein, minerals, and vitamins—for energy and for building tissues and maintaining body functions. It has been found that children's appetites can't always be depended upon to provide enough calories for satisfactory growth.[1]



Adequate calories are necessary for both "visible growth," measured by gain in weight, and for "invisible growth," measured by gains in protein.[1] Increasing the energy intake increases efficiency of protein utilization.[2] Both carbohydrate and fat are effective, but fat appears to play a special role in protein utilization and improved growth rates.[2]

A serving of vanilla ice cream supplies, in addition to energy, nearly one-fourth of the day's riboflavin need for a 7 to 9 year old child, one-fifth of the vitamin A, and more than one-tenth of the calcium, as well as some of all the other important milk nutrients.[3]

High nutritive value plus appetite-tempting taste make ice cream a good food for children.



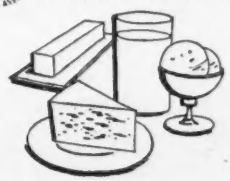
Percent contribution of one serving (⅛ qt.) vanilla ice cream to daily needs for certain nutrients of 7-9 year old child.

[1]Macy, I. G. and Hunscher, H. A. Calories—a limiting factor in the growth of children. J. Nutr. *45*:189 (Oct.) 1951.

[2]Geiger, E. Extra caloric function of dietary components in relation to protein utilization. Fed. Proc. *10*:670 (Sept.)1951.

[3]Dahlberg, A. C. and Loosli, J. K. Nutritive value of commercial ice cream. J. Am. Diet. Assn. *24*:20 (Jan.) 1948.

This seal indicates that all nutrition statements in the advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.



Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.

NATIONAL DAIRY COUNCIL

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found it easier to treat diabetes than to diagnose it.

FOOD RESEARCH

Vol. 17, November–December, 1952

* The role of temperature in amino acid losses during the prolonged storage of evaporated milk. A. Z. Hodson.—p. 467.
* Spoilage of canned foods caused by the *Bacillus macerans-polymyxa* group of bacteria. R. H. Vaughn, I. H. Kreulevitch, and W. A. Mercer.—p. 560.

Protein Loss in Storage of Evaporated Milk. The effects on amino acid loss from the storage of evaporated milk at temperatures of: 40°F., room temperature varying usually from 75° to 84°F., and 100°F., were studied along with measurement of the growth of rats fed on the stored products. After one year's storage, no amino acid loss was shown at 40°F. or at room temperature storage, but measurable losses of tryptophan, lysine, histidine, and arginine were found at the highest temperature. At the end of two years, large losses of the four acids took place at 100°F. No losses were recorded at the lowest temperature, while only slight losses of lysine and histidine were noted resulting from room temperature storage. Comparison of the storage effects by the rat-growth process showed that when kept at 40°F., the milk was definitely superior to that stored at warmer temperatures. Also, really detrimental changes occurred in appearance and palatability during storage at higher temperatures.

Bacteria in Canned Foods. Several outbreaks of canned food spoilage have been observed in which it was possible to incriminate members of the *Bacillus macerans-polymyxa* group, although this group had not previously been included among the major groups of canned food spoilage organisms. In studying the occurrences, cultures were isolated from different cannery waters, a canner's sucrose sirup, and a variety of spoiled canned apricots, fruit cocktail, olives, cling peaches, diced mixed cling peaches and pears, asparagus, corn, peas, spinach, and tomatoes. The bacteria were found to be quite tolerant to acidic environments and to reasonably high concentrations of sucrose. In addition, their spores were fairly resistant to chlorine and to heat. Control under operating conditions in canneries was found to be possible by the observance of more thorough sanitary practices, including strict control of cooling waters, use of breakpoint chlorination with 2 to 5 p.p.m. chlorine in the cooling waters, and more efficient operation of the processing equipment.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 151, January 24, 1953

* Nutrition and appetite training during illness. R. W. Keeton.—p. 253.
* Physical medicine and obesity. F. H. Krusen. Council on Foods and Nutrition.—p. 296.

Vol. 151, February 14, 1953

* Glycogen storage disease. Editorials and Comments.—p. 560.

Nutrition in Illness. In illness there is a rapid disturbance in metabolism which varies with the nature of the illness, its duration, and the patient's ability to eat. The metabolic alterations follow the pattern of those seen in varying degrees of starvation, and the problem of feeding the sick may be simply stated as one of preventing starvation. In considering the dietary requirements of the sick, the physician should think in terms of the degree of obesity of the patient and his quantity of expendable fat reserve. To compute the patient's caloric requirements, it is well first to compute his basal requirements and to assume that his metabolic machinery is functioning normally. Additional allowances can then be made for factors introduced by the illness, such as fever, restlessness, cough, and specific dynamic action of food. The repletion of body structure after prolonged illness cannot be accomplished by the feeding of extra calories alone, because this does not augment the rate of utilization of a given quantity of protein. When extra protein is fed, with the caloric intake being maintained above the critical level, the synthesis of protein is accelerated. Patients without gastrointestinal disease were used in appetite training studies in which weight gain was obtained by serving a total day's food in only one or two meals, thus taking advantage physiologically of periods of gastric tetany and hypoglycemia. In two cases described, psychiatric treatment helped to overcome the patients' anorexia by overcoming inhibitory influences on appetite.

Obesity and Physical Medicine. This spokesman of the Council on Physical Medicine and Rehabilitation explodes any idea that any type of physical treatment in weight reduction is of value. He points out that many "slenderizing" plans combine baths, massage, and exercise, but that usually they depend basically on a low-calorie diet introduced somewhat surreptitiously in conjunction with the highly touted physical procedures. Baths produce no noticeable loss of weight, except temporary weight of water. Massage will not reduce local fat deposits. Its only value may be in restoring elasticity to the sagging skin after much fat has been removed from the entire body, including the affected region, by appropriate dieting. Even physicians do not seem to realize that no form of external manipulation can remove adipose tissue from a particular region of the body. Proper reduction of food intake is the only logical method of reducing. In many adults this is a residual problem from their youth when they were more active and learned to like large quantities of food, the appetite remaining after the need has ceased. Not only is it a problem to get them to follow a low-calorie diet, but physicians concerned with metabolism therapy should recognize the difficulties of the transition period between the end of the reduction diet and the time a maintenance diet habit of eating is established.

Glycogen Storage. In von Gierke's disease, characterized by an excessive deposition of glycogen in the liver and other affected organs, there is usually no abnormality in the structure of the stored glycogen. This observation led to investigations of the liver enzymes necessary for the conversion of glycogen to glucose. It appears that at least one important factor in the disease is a definite enzymatic lesion, a lack of glucose-6-phosphatase.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 200, January, 1953

* On the folic acid activity of human blood. G. Toennies, H. G. Frank, and D. L. Gallant.—p. 23.
* Effect of low protein diet and fasting on nucleic acid metabolism in the rat. J. A. D. Cooper.—p. 155.

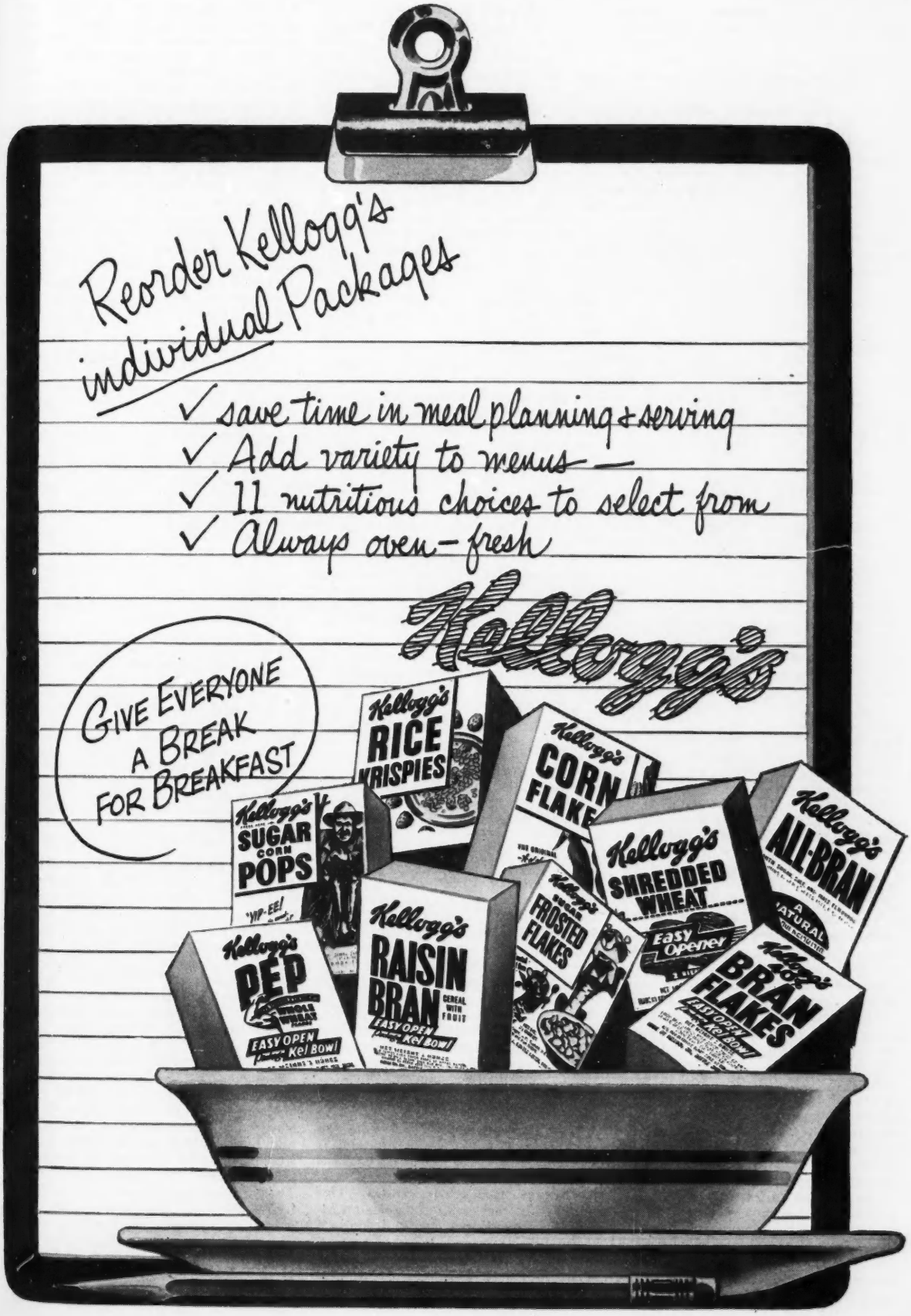
Folic Acid Activity of Blood. In experimenting on folic acid and related factors in the human circulatory system, conditions were established under which whole blood could yield the highest bacterimetric folic acid activity. Measured by *Lactobacillus casei*, dialysates prepared from blood hemolysates at low temperature showed folic acid activities twenty to one hundred times as high as those previously reported. The active factor or factors, termed folacin substitute or FS, are subject to changes on storage of the dialysates, an initial phase of increase being followed by loss of activity. The rate of change depends on the concentrations of dialysate and buffer salts, and on *p*H. Compared with its *L. casei* activity, the *Streptococcus lactis* activity of FS is small, indicating nonidentity with folacin. Variations in the *L. casei-S. lactis* activity ratio and in the relative rates of change of these activities on storage suggest that FS may be multiple in nature.

Diet and Nucleic Acid Metabolism. The effect of diet and fasting on the content and rate of incorporation of radiophosphorus into the nucleic acids in organs other than the liver was studied in female rats. A control group was fed the Rockland rat diet, containing 11 per cent protein, for three weeks. Another group was placed for three weeks on an 8 per cent casein diet, while the third group was fed the Rockland diet prior to being fasted for 96 hr. The group on the low-protein diet showed a 13 per cent decrease in both ribonucleic acid phosphorus (RNAP) and desoxyribonucleic acid phosphorus (DNAP) of the intestine with a 29 per cent decrease in the relative specific affinity of RNAP. The fasting group showed an increase in DNAP content of liver and kidney with a decrease in the RNAP–DNAP ratio. There was no change in the nucleic acid content of the intestine, but a decrease in both RNAP and DNAP was found to have occurred in the spleen.

JOURNAL OF CLINICAL INVESTIGATION

Vol. 32, January, 1953

* Isotopic studies of potassium metabolism in diabetes. J. K. Aikawa, J. H. Felts, Jr., and G. T. Harrell, Jr.—p. 15.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Potassium Metabolism in Diabetes. In this study the exchangeable potassium content of the body was determined by radioactive isotopic technique in forty-two unselected diabetic subjects. The results of the study suggested that whenever carbohydrate metabolism is not properly controlled in diabetes mellitus, an occult intracellular deficit of potassium may develop. It was not possible to determine whether this deficiency is due to superimposed dehydration and acidosis or whether it is due to uncontrolled diabetes *per se*. Such a deficit may be corrected by better regulation of the diabetes (which permits adequate intake of potassium in the food) and the administration of an oral supplement of potassium.

JOURNAL OF HOME ECONOMICS

Vol. 45, January, 1953

* The nutrition of mothers and children. C. M. Leamy.—p. 25.
* Test procedures for oven performance. E. S. Ross, D. S. Greene, and M. G. Fisher.—p. 35.
* The human touch in institution administration. C. S. Steinmetz.—p. 41.

Vol. 45, February, 1953

* Limitations of consumer food protection under existing laws. C. W. Crawford.—p. 81.

Child Nutrition. There appears to be no period during the life cycle in which diet is not of primary importance. The reasonable goal in nutrition is to establish a lifetime of good food habits beginning with the preconceptional and prepartum period. In the discussion of critical periods, it appears that the relationship of protein and caloric intake presents a widespread problem. When the caloric intake is poor, protein is used for energy rather than for tissue building, thus limiting growth. Good quality protein for breakfast is particularly important, making a considerable difference in the use of the protein eaten during the rest of the day. The eating habits of older school children are found to be poorer than those of younger groups. Diets among school-age children are noticeably deficient in milk and foods rich in ascorbic acid and carotene. Another factor in relation to the nutrition of school children is dental decay which appears to be affected both by the diet of the mother during pregnancy and intake of sweets during childhood. To summarize the over-all nutrition picture, the strongest trends in current research emphasize that both essential and nonessential nutrients are in constant interplay; hence, quantitative requirements are interdependent.

Testing Ovens. In order to test oven performance better, standards of equipment needed, combination of ingredients, and baking procedure have been developed. Four standards for testing the finished product are listed. If the product measures up to the standards, the range is considered satisfactory.

Institution Administration. Understanding the "human touch" in administration is all-important, both in the attitude of the administrator and in the action he takes. Every employed person has a tremendous reservoir of untapped potentials. These can be developed and brought to use in the job situation if the manager or supervisor will endeavor to hear the employee, understand him, motivate his desires, acknowledge his efforts, keep him informed so that he feels he "belongs" to the organization, train him, and honor him as a person.

Consumer Food Protection. Myths and folklore about foods and diet are as old as mankind, but a vast new folklore of nutrition is being built by distorting the facts of the real advances in the science of nutrition. Unless actually used for labeling or commodity advertising, false or misleading claims in regard to foods cannot be legally prosecuted by the Food and Drug Administration or the Federal Trade Commission. Some of the most widespread nutrition myths and claims are those which deal with "subclinical deficiencies" and the promise that food-supplement products will effect a cure. Much of this quackery cannot be adequately dealt with by law, but must be exposed by valid education emphasizing the distinction between known facts and speculations. The growing use of food additives poses another problem, although it is one which can be attacked through legislation. The federal Food, Drug, and Cosmetic Act does not now require testing of new additives before they are used. They may be excluded only at such time as standards have been formulated and the substances have been proved poisonous or injurious. In the interim the public is the guinea pig. Legislation covering this situation has been proposed, but even shyuld it be enacted, the scientist must still be alert in advancing scientific investigation.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 21, April, 1952

* Studies on carbohydrate metabolism in toxæmia of pregnancy. 3. Sugar mobilisation in toxæmia of pregnancy. C. Mukherjee.—p. 279.

Vol. 22, December, 1952

* Dietary study of agricultural landless labourers of Bhabhua (Bihar). S. B. Lal.—p. 101.

Toxemia of Pregnancy. Findings in toxemia of pregnancy often indicate that the liver may be deficient in its store of glycogen and the subject requires further study. In this investigation, adrenalin was administered because it is known to cause a rapid use of blood sugar in normal persons. It was found that the mobilization of glycogen is less than normal in pregnancy and still less in pregnancy toxemia. The diminished sugar mobilization does not appear to be due to a deficient consumption of carbohydrates, but the disturbed metabolism of carbohydrates seems to be associated with a state of acidosis, lipemia, and disordered protein metabolism and is probably related to the status of the functional activity of the pituitary body.

Dietary Survey in India. This study of dietary habits includes an attempt to assess the level and effect of consumption of raw, home-pounded rice. Data were collected for ten days by house-to-house visits at the time of meal preparation. All food ingredients were weighed in the raw state. Three income groups were classified: landless laborers, professional persons, and land-owning farmers. The intake per consumption unit of the various classes of foodstuffs was determined for each type of family. All three groups were found to have an adequate intake of all nutrients except calcium and animal protein. Caloric consumption was low in the case of agricultural laborers, the group having the highest caloric requirements. Farmers were consuming the greatest quantity of milk. Only a small percentage of children showed nutritional defects. As was expected, no thiamine deficiency was observed, since nearly half of the cereal consumed was wheat or barley, and the rice that was used was home-pounded and not milled.

THE JOURNAL OF NUTRITION

Vol. 48, December, 1952

* Synthesis of certain B-vitamins in the cobalt deficient sheep, with special reference to vitamin B_{12}. W. G. Hoekstra, A. L. Pope, and P. H. Phillips.—p. 421.
* The utilization of calcium from lactate, gluconate, sulfate and carbonate salts by young college women. M. B. Patton and T. S. Sutton.—p. 443.
* Effect of untreated corn and Mexican tortilla upon the growth of rats on a niacin-tryptophan deficient diet. R. O. Cravioto, G. H. Massieu, O. Y. Cravioto, and F. deM. Figueroa.—p. 453.
* The relationship between the protein content of corn and the nutritional value of the protein. H. H. Mitchell, T. S. Hamilton, and J. R. Beadles.—p. 461.
* The influence of vitamin B_{12} and antibiotics on protein and energy utilization in a low protein diet. L. K. Knoebel and A. Black.—p. 477.
* The relation of the rate of growth to the diet. A study of a stock colony ration for albino rats. R. B. Hubbell and W. A. Krehl.—p. 553.

Vol. 49, January, 1953

* Effects of dietary aureomycin upon the intestinal microflora and the intestinal synthesis of vitamin B_{12} in the rat. K. R. Johansson, G. E. Peterson, and E. C. Dick.—p. 135.
* Comparison of four feeding methods for assessing the relative growth-promoting properties of proteins. F. W. Sherwood and V. Weldon.—p. 153.

Cobalt Deficiency and Vitamin B_{12}. Three sheep in a severe cobalt-deficiency, as characterized by anemia, body weight loss, lack of appetite, and general moribund condition, were given intravenous injections of 20 mcg. vitamin B_{12} twice daily for twenty-one days. In all three, this treatment was followed by an immediate and remarkable response in feed consumption, vigor, and weight gain. Blood hemoglobin concentrations rose to normal within forty to sixty days. The response to treatment continued for about one hundred days; then the animals began developing evidence of a second cobalt-deficiency. Two of the sheep were given a second series of vitamin B_{12} injections and again exhibited similar responses although the hemoglobin responses were somewhat erratic. These results suggest that vitamin B_{12} is by far the most important, if not the only limiting factor in the cobalt-deficient sheep.

Utilization of Calcium from Salts. Most calcium utilization studies have compared the utilization of calcium from

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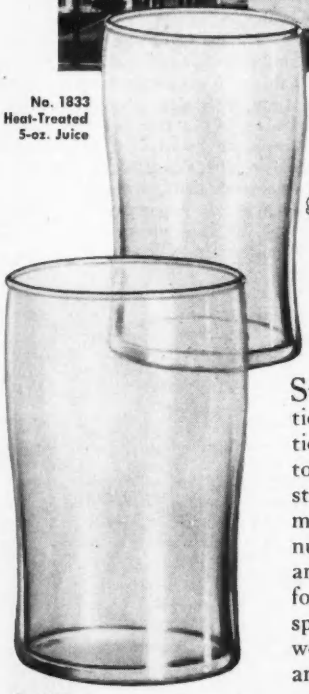

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food sources with that from various calcium salts. A group of nine young women college students was fed a basal diet containing 347 mg. calcium daily. This was supplemented by 400 mg. calcium daily from glucognate, lactate, carbonate, and sulphate salts. The calcium level was so high that an additional dietary increment could be expected to have a retention value of zero. Fecal and urinary calcium was determined and serum calcium levels were followed at the close of each experimental period. Calcium from the less soluble salts was utilized as well as that from the more soluble ones. The salt taken first was utilized to the largest percentage regardless of which salt it was. Subjects having normal basal metabolic rates appeared to utilize the calcium from salts somewhat better than those whose metabolic rate was below normal. The utilization of calcium from all the salts approximated that utilized from food sources. The serum calcium levels remained normal during the eight weeks of observation.

Corn vs. Tortilla. In this study a comparison was made between the effect of untreated corn and Mexican tortilla upon the growth of rats on a niacin-tryptophan-deficient diet, with and without supplements of cystine. Corn inhibited growth in cystine-supplemented rations, but tortilla actually stimulated growth. In the absence of cystine, corn apparently failed to depress the growth, which was similar to that in rats fed tortilla.

Nutritional Value of Corn Proteins. In increasing the protein content of corn by selective breeding, the alcohol-soluble protein, zein, having the poorest nutritional value of the proteins, is shown to increase to the greatest extent. However, the low biologic value of the proteins of corn and their decreasing value as the protein content is increased are not serious matters when corn is used in animal feeding. It is easy and practical to use corn in farm rations in combination with feeds capable of correcting the amino acid deficiencies.

Protein and Energy Utilization. A seventy-day growth and metabolism investigation was conducted on two groups of twelve litter-mate pairs of albino rats, body balance techniques being employed. The purpose was to study the effects of vitamin B_{12} and antibiotics on protein and energy utilization. The rats were fed a basic diet composed of all known essential nutrients except vitamin B_{12}. One animal in each pair was then fed a supplement containing the vitamin and antibiotics. The utilization of energy-producing nutriment absorbed from the intestinal tract was shown to be improved by the presence of the supplement. Rats receiving the supplement gained somewhat more live weight, stored more fat and less water, had less digestible and metabolizable energy, and produced less heat than the control animals.

Rate of Growth and Diet. The rate of growth of the "Yale Strain" of rats, bred for experimental purposes, was shown in 1931 to be enhanced by the food supplied and not by the selection of unusually large animals for breeding. When a decline was noticed in the percentage of litters born and weaned, it was thought that the breeding performance of the animals might also call for a modification of the stock ration. Supplements of liver or orange juice were fed to selected groups of the animals. The average percentage of litters born and weaned was definitely lower in all of the experimental groups, including control groups, than in the main colony. However, although fewer young were born and weaned, the weaning weights of the controls and of the liver-fed rats were slightly above those of the fifteen-year average for the colony.

Effects of Aureomycin on the Rat. Most workers believe that effects on intestinal bacteria are partially or wholly responsible for the growth response of some animals fed antibiotics. This study assesses the influence of aureomycin on the intestinal microflora of the rat and concurrently explores the interrelationships between the intestinal biosynthesis of vitamin B_{12} and dietary aureomycin. Groups of experimental rats were fed for thirty days on purified rations limited in methionine or vitamin B_{12} or both. Growth was not stimulated markedly by the addition of aureomycin unless vitamin B_{12} was also added. Vitamin B_{12} and methionine were found to be equally beneficial to growth when added to the deficient basal ration. Total numbers of coliform bacteria in the feces appeared to be unaffected when aureomycin was incorporated in the purified diets, but its addition to the stock diet resulted in an increase of these organisms. No conclusive effect of aureomycin on the concentration of vitamin B_{12} in the intestinal tract was demonstrated.

Comparison of Experimental Feeding Methods. The work reported here was undertaken to obtain information on the relative sensitivities of the *ad libitum* and the paired feeding techniques when used for comparing the growth-promoting value of cowpea protein with that of casein. Additional feeding procedures, the constant protein method and the adjusted protein method, were also studied. Rated in order of sensitivity, the adjusted protein method ranked highest with the *ad libitum* method slightly less sensitive and the paired feeding and the constant protein techniques following. When over-all comparison suffices for the objective at hand, the *ad libitum* method was found to be preferred because of its simplicity. The adjusted protein method requires considerably more time and labor.

NUTRITION

Vol. 6, Winter, 1952

* The mystery of nutrition. V. H. Mottram.—p. 10.
* The dietetics of wasting diseases in childhood. D. Lawson.—p. 31.

Science of Nutrition. Like any mystery connected with life and living, nutrition is not a simple subject. Its study can be a lifetime occupation, but for all the detailed knowledge it requires, it can prove to be great and rewarding fun. One of the reasons that nutrition is not a simple subject is that it is a recent science continually yielding new findings which outdate old beliefs. In addition, foods are complicated products, agriculture is a complicated pursuit, and man has a complicated anatomy, physiology, and psychology. Finally, prejudices abound on the subject of food which a little knowledge will not dispel. Only the widest knowledge of nutrition as a science and its ancillary subjects will serve to overcome the prejudices and to solve the puzzle of how the muffin becomes a part of Miss T. although Miss T. in no way comes to resemble a muffin.

Wasting Diseases of Childhood. Celiac disease and fibrocystic disease of the pancreas account for the great majority of cases of chronic malnutrition met in pediatric practice in England. Because of the common symptom, steatorrhea, these two diseases have long been confused and have been clearly separated only in the last decade. In fibrocystic disease, the pathology of the pancreas, arising from what is probably a congenital biochemical defect in the quality of the mucus which lubricates the mucous membranes throughout the body, causes faulty food absorption. A ravenous appetite and incompletely digested food are manifestations of the disease. Therapy consists of the administration of pancreatin before every substantial meal, but there is no restriction on the kind of food that may be fed. With celiac disease, however, treatment until recently consisted of the restriction of fats and starches; it has now been shown that the food constituent which is deleterious, although associated with carbohydrates, is not starch itself. This disease seems to consist of a specific intolerance to wheat and to rye gluten, but wheat starch has proved safe provided it is entirely separated from the protein part of the wheat flour. The disease is now entirely controllable, but it requires dietary care over many months, often over several years, specific recommendations for which are discussed.

NUTRITION REVIEWS

Vol. 11, January, 1953

* Resources in nutrition research. L. A. Scheele.—p. 1.
* Malnutrition in young children.—p. 3.
* Blood pressure in undernourished Europeans in the tropics.—p. 7.
* Protein metabolism in diabetes.—p. 15.

Vol. 11, February, 1953

* Salt. J. R. Smith.—p. 33.

Nutrition Research. There is increased recognition of the importance of the young science of nutrition, which promises a new era of better health comparable to that accompanying the earlier control of communicable diseases. Expanded knowledge of nutrition is fundamental to the solution of many major health problems. It is probably true that a proper diet contributes to healthful, productive adulthood and old age and plays a vital role in raising the standard of living. Some of the problems still facing the scientist include the identification of more dietary factors influencing metabolism and obesity and further study of such chronic diseases as diabetes

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and arteriosclerosis from a dietary standpoint. There is still much to learn about food supplies themselves and their most satisfactory utilization.

Malnutrition in Children. The forgotten age, nutritionally speaking, may well be the second through the fifth years of life. Infant nutrition has been greatly improved and widely instituted nutrition education programs in schools guide the parents of the school child. Over a period of one year, workers studied fifty cases of malnutrition and anemia in children in the one-to-four-year age group, taking careful nutritional histories. Associated with a relatively high milk intake was a corresponding reduction in the amount and variety of solid foods. The supply of supplementary vitamins was scant, having ceased entirely, in many instances, after the child's first birthday. Treatment consisted of immediate weaning from breast or bottle; instruction to parents about adequate diet; encouraging the child to feed himself; administration of an iron-vitamin mixture each day; study of the feces for ova and parasites, and further follow-up studies of the blood after treatment. Satisfactory recovery was found in 50 per cent of the cases. Data indicate that a serious degree of malnutrition may develop in these "undisciplined" years in spite of seeming well-being and that specific deficiencies may induce disorders that are not repaired by a subsequent normal diet.

Blood Pressure. A group of European men, maintained on a low-calorie, low-protein ration during prolonged internment in the tropics, was observed with special attention being given to age, weight loss, mental stress, and initial levels of blood pressure. The evidence showed that such restriction, while resulting in severe weight loss, was not accompanied by a drop in blood pressure, even with moderate limitation of sodium. The relation of diet to hypertension is still far from being understood.

Protein Metabolism in Diabetes. Protein as well as fats appear to be sacrificed in severe, untreated diabetes, but whether the protein loss is a consequence of the lack of insulin or is a secondary effect of the diabetes has long been controversial. Observing the urinary excretion of heavy nitrogen, administered as labeled glycine to diabetic rats, the conclusion was reached that in alloxan-diabetes there is both depression of protein synthesis from amino acids and acceleration of protein breakdown. By comparing the results with a study of adrenalectomized alloxan-diabetic rats, in which there was no acceleration of protein breakdown but a reduction in the rate of amino acid catabolism, it was concluded that diabetes depresses the rate of protein synthesis. Experiments on dogs point to the same conclusion.

Salt. Salt has been valued by man from the days of antiquity. Its use has been surrounded by lore and custom, and it has held an important place in the history of commerce. Shortages of sodium chloride have been found to be deleterious to animals, particularly those on herbivorous diets, and to man. Observations have led to the suggestion that taste and flavor may be significant regulatory mechanisms for rectifying dietary deficiencies of the substance, but the means by which salt imparts relish to certain foods are little understood. Low-sodium diets are considered essential in the treatment of congestive heart failure and hypertension. However, a low-sodium diet is disagreeable, or even intolerable, to some persons and satisfactory substitutes for improving the flavor of food are constantly sought.

PSYCHOSOMATIC MEDICINE

Vol. 14, November-December, 1952

* Clinical significance of starvation and oral deprivation. J. A. M. Meerloo and L. D. Klauber. —p. 491.

Starvation. This report describes a syndrome resulting from starvation during famine. Marked psychologic changes occurred. Feelings of hunger in the primary stage gave way to restless wandering, wish fulfillment in dreams, and visions of food in the advanced stages. Then a deterioration in personal habits, feelings of aggressiveness, suspicion, and irritability developed. In the final stages, apathy and even death were seen. The patients sought many physical and mental substitutes for food. The authors discuss the different methods of therapy which can be used in treatment of such cases.

SCIENCE

Vol. 117, January 9, 1953

* Observations on the nutritive value of *teosinte*. I. E. Melhus, F. Aguirre, and N. S. Scrimshaw. —p. 34.

Vol. 117, January 16, 1953

* Food intake and hepatic vitamin A in castrated mice. B. L. Truscott.—p. 63.

Vol. 117, January 30, 1953

* Ascorbic acid and the oxidation of tyrosine. B. N. La Du, Jr., and D. M. Greenberg.—p. 111.

Nutritive Value of *Teosinte*. *Teosinte*, a grain similar to maize, having a smaller kernel and a hard, inedible hull, has long been grown with corn by the native peoples of Central America and Mexico. Analysis of the grain has been made for the determination of several important nutrients: fat, nitrogen, methionine, niacin, tryptophan, and lysine. Nitrogen values are found to be considerably higher than those of corn and superior to those of many other cereals. Of even greater significance is the correspondingly higher methionine content of *teosinte*, more than twice that of corn. Niacin content is lower than that of corn while the amounts of tryptophan and lysine do not differ greatly in the two grains. The fat content of *teosinte* may prove to be lower than that of corn. However, the relatively high proportions of total protein and methionine make *teosinte* potentially important for improving nutrition in underdeveloped areas of the world.

Vitamin A Intake. Mice were divided into two groups, one castrated and one intact, and placed on weighed identical diets of Purina fox chow, the vitamin A content of which was known. The study was made to investigate the fact that castration is accompanied by significant increases in liver vitamin A stores and to find if this condition results from increased ingestion of food. Body weight for each animal was recorded immediately prior to autopsy, and liver samples were analyzed for vitamin A content by the antimony trichloride method. A marked increase in liver stores of the vitamin was noted in the castrated mice. Even though it was impossible to measure exactly the food intake per animal per day, the result of the study is significant. While the factors responsible for the increased levels of hepatic vitamin A in castrated rats and mice are still undetermined, the amount of food consumed appears to have no effect on the body stores of the vitamin in castrated animals.

Oxidation of Tyrosine. Ascorbic acid may have a less specific role in the biologic oxidation of tyrosine than has been hitherto suspected. It is possible that it may be successfully replaced in the process by a number of structurally unrelated compounds that are susceptible to oxido-reduction. When *l*-tyrosine was used as the substrate with extracts of liver acetone powder, the addition of ascorbic acid increased oxidation of tyrosine only when *a*-ketoglutarate was also present. The observation that several compounds are able to stimulate the first oxidative step, the oxidation of p-hydroxyphenylpyruvic acid, suggests that the first requirement for the compound is that it have the proper oxidation-reduction potential. Whether the compounds used successfully in the process function by protecting the small amount of ascorbic acid present in the tested extract or completely replace ascorbic acid in this system is not yet determined.

UNITED STATES ARMED FORCES MEDICAL JOURNAL

Vol. 4, January, 1953

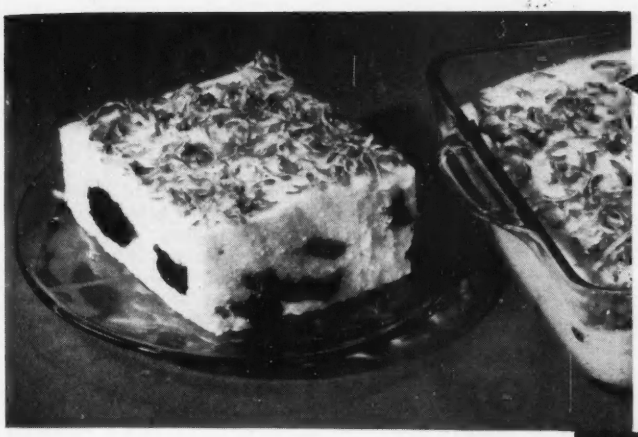
* The role of thiamine hydrochloride in dentistry: Part I. J. L. E. Bock.—p. 81.

Thiamine Therapy. Clinical observations of thiamine therapy are discussed in regard to painful dental conditions, touching on the extent of relief from pain, the time required for relief, the dose required, and side reactions. The value of recognizing symptoms of thiamine deficiency in dental patients cannot be overemphasized because their elimination with adequate vitamin therapy may make the difference between successful and unsuccessful treatment. The cause of thiamine deficiency is fundamentally nutritional in nature and may be brought about by inadequate intake of thiamine, inadequate absorption of thiamine, increased requirement of thiamine, or excessive loss of thiamine. In diagnosis this may not be seen as a separate vitamin deficiency but is more apt to occur in multiple avitaminosis, the oral symptoms of which include hypersensitive teeth and hyperesthesia of the oral mucosa. The tongue appears flabby, enlarged, edematous, and lacks muscle tone. Some precancerous mouth

How to brighten LOW-FAT DIETS:

Add extra heartiness— new taste appeal — with CALIFORNIA PRUNES

Help your patients stick to your low-fat diets. Provide them with *satisfying* recipes like these—made extra delicious, extra nutritious with California Prunes.

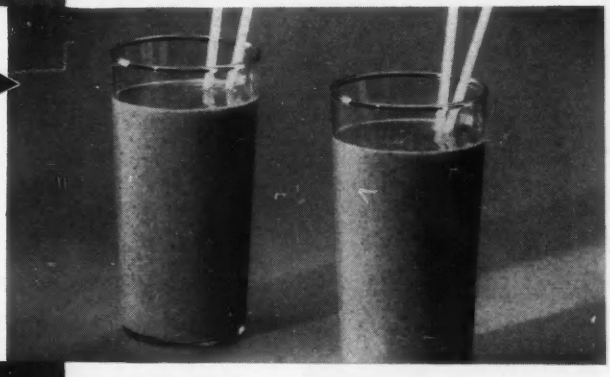


Prune Cheese Cake Bavarian

2 Tbsps. gelatin
½ cup cold juice from Prunes
1 cup hot water
1 lb. dry cottage cheese
1¼ cups sugar
4 Tbsps. lemon juice
1 tsp. vanilla
½ tsp. salt
½ cup chopped, cooked California Prunes
¼ cup crushed dry soya cereal
1 Tbsp. sugar
¼ tsp. nutmeg

Soak gelatin 5 minutes in juice from Prunes. Dissolve in hot water. Sieve cottage cheese and add with sugar, lemon juice, vanilla, and salt to gelatin. Chill until slightly thick; fold in Prunes and pour into 5x9-inch pan. Combine cereal crumbs with sugar (1 Tbsp.) and nutmeg. Sprinkle over top. Chill until firm. Serves 8.

Fat content: 3.35 grams (0.42 grams per serving).
Cholesterol content: 10.1 mg. (1.26 mg. per serving).



Spiced Prune Milk Shake

1 cup cooked, pitted California Prunes
2 cups liquid (juice from Prunes plus water)
6 Tbsps. skim milk powder
¼ tsp. each cinnamon and nutmeg
2 tsps. sugar
Dash salt

Puree Prunes. Combine with juice and water, skim milk powder, spices, sugar, and salt. Beat or shake until well blended. (If using electric blendor, no need to puree Prunes). Serves two.

Fat content: 0.7 grams per serving.
Cholesterol content: 0.8 mg. per serving.

California Prune Fluff

½ cup cold water
1½ Tbsps. lemon juice
½ cup dry skim milk
¼ tsp. nutmeg
1½ cups chopped, cooked California Prunes
3 Tbsps. sugar
⅛ tsp. salt

Combine cold water, lemon juice, and dry skim milk powder. Beat with beater until mixture resembles whipped cream. Stir in nutmeg, Prunes, sugar, and salt. Chill. Makes 6 servings.

Fat content: 1.8 grams (0.3 grams per serving).
Cholesterol content: 2.1 mgs. (0.35 mg. per serving).

Good eating, and a *lot more*...

You're sure, too, of the essential A and B vitamins . . . of abundant fruit minerals and other health benefits . . . when your diets include luscious California Prunes.

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Prunes

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lesions, including leukoplakia, have been linked to a B-vitamin deficiency. Neuralgia and postoperative pain following dental extractions and other dental operations have been reported as being relieved with the administration of thiamine. The dental disorders often involve the nervous and muscular systems. Of major importance in the therapeutic use of thiamine is its effect on the central and peripheral nervous system. This is discussed specifically in cases of various kinds of neuritis, including beriberi, alcoholic polyneuritis, polyneuritis of pregnancy, diabetic neuritis, chemical neuritis, neuritis due to pernicious anemia, and pellagral neuritis; behavior changes; mental depression; anorexia; weakness; and nervousness.

AMERICAN RESTAURANT MAGAZINE

Vol. 37, February, 1953

* Simple factors behind service of 350,000 a day. H. S. Ehle.—p. 50.
* Simplified portion control for 58 best sellers. G. L. Wenzel.—p. 96.

Serving 350,000 a Day. Popular likes and dislikes are recognized, waste is cut through maximum use of production, and eye appeal and showmanship are used by a giant industrial feeding company with almost 200 operations scattered over the U. S. and Canada. Menus utilize the month's plentiful, low-cost foods and leftovers and are ana'yzed by a staff of nutritionists for adequacy according to the "Basic Seven." Menu planners recognize regional food habits in an effort to promote business. In one plant where 70 per cent of the workers are southerners, the menu includes such items as corn bread, black-eyed peas, and salt pork with parsnips. Superior grades of foods are always used, with special emphasis on merchandising techniques to increase sales. Take-home foods are available in some of the establishments serviced by this company. A centralized administrative system is used, but its plan is flexible enough to be adapted to local conditions. Although purchasing is done locally, purveyors are selected and specifications worked out by the central office which also issues bulletins on operating procedures and safety which go to the individual units in the chain. Personnel policies are determined in the home office and key personnel are supplied for new operations.

Meat Portion Control. Creamed chipped beef, browned lamb stew, veal stew, chicken à la king, and chicken-and-noodles appear on this month's portion control chart. The author discusses pilferage in restaurant operation and cites the device called an "integrity machine" for discovering employees' thefts.

FOOD ENGINEERING

Vol. 25, January, 1953

* Pinning down bag-borne bacteria. W. L. Owen. —p. 57.
* *Better* artificial vanilla flavor. C. A. Tyler.—p. 62.
* Show-place is safe place. J. J. Renner and O. D. Duggins.—p. 74.
* Quick cooling cuts fresh vegetable losses. C. E. Wright.—p. 94.

Sanitary Aspects of Paper Bags for Sugar. The rigid restrictions proposed by the American Bottlers of Carbonated Beverages that sugar used in their field contain no more than 10 molds per 10 gm. will require sugar processors to scrutinize their packaging materials more closely for contaminants. Paper milk and ice cream containers are already rigidly scrutinized for microbial content. Bread wrappers and paper for wrapping butter are today made by special processes (the result of research) which make them sterile. An investigation was conducted to determine possible contaminating conditions of paper bags used in packaging sugar. Results, presented in tabular form, indicate: (a) bacterial concentrations in the bags tested were insufficient to contribute materially to the bacterial content of the sugar; (b) more bacteria appeared on the bottom of the bags than elsewhere (six times as much as on the sides); (c) mold was present on some bags, but yeast only appeared on the bottom of one sample; and (d) the bags contributed to an increase in the mold content of the sugars.

New Artificial Vanilla Flavor. A series of panel tests gave high approval to propenyl guaethol as a concentrated artificial vanilla flavor. Tests gave comparisons between artificial vanilla flavorings of different compositions and natural vanilla.

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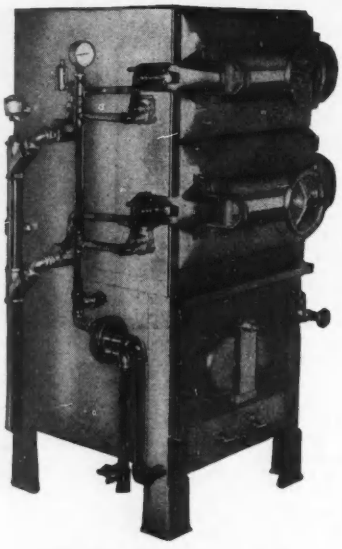
Steamers Exclusively



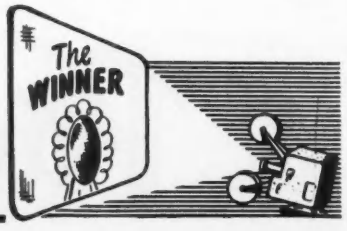
This experience in manufacture, and contact with actual users, has produced such practical and efficient steamers that owners and operators continue to buy more and more STEAM-CHEF steamers. There are more STEAM-CHEFS in use today than all other makes combined.

If you serve more than 50 persons per meal it is to your interest to get the facts on the advantages of steam cooking and the advantages of STEAM-CHEF heavy duty steamers and "Steamcraft" Junior steam cookers.

These steamers will save you money in 10 ways and help you serve better meals in 10 more. Ask your dealer, or write us.

STEAM-CHEF, our heavy-duty steamer, is available with 2 or 3 compartments. Steamcraft, for smaller kitchens, with 1 or 2 compartments. All models available for direct steam, gas or electricity.

Educational 24-minute sound, color movie gives dramatic steam-cooking demonstration. Available on request for showing to groups.



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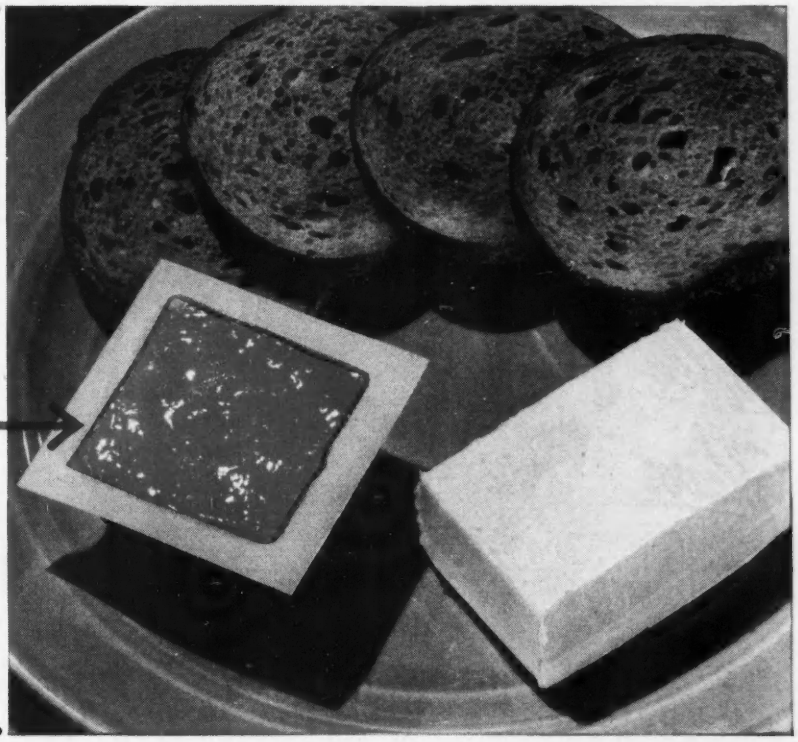

*PORTION CONTROL

DESSERT SUGGESTION

Toasted rye bread served with 1-oz. dessert portion of Philadelphia Brand Cream Cheese and tart jelly in PC Pack.

Individual Airtight Plastic Containers Assure Perfect Portions, Measured Costs and Convenience

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SIZES AND VARIETIES TAILORED TO YOUR NEEDS

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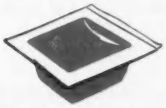
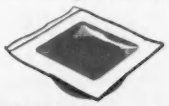


1-OZ. PORTION for those who desire more generous serving.



½-OZ. PORTION for average serving.

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Orange Marmalade
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PC's are conveniently packed in trays of 20—10 trays to the box.

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Show-Place Perfection. A "good housekeeping and safety committee" meshes plant upkeep with a safety program in a Minnesota brewery. The committee, composed of key personnel, meets twice a month. Inspection tours, reports on accidents by the safety director, and employees' suggestions are some of the ways this program is carried out.

Cutting Vegetable Losses. The application of speed in handling, frequent washing, and quick cooling to temperatures just above freezing by hydro-cooling units make it possible for fresh vegetables to arrive at their destination in superior condition.

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Vol. 75, January, 1953

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THE MODERN HOSPITAL

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Here's

There are many tastes to please in a hospital—nurses, patients, doctors, the administrative staff. In coffee *all* want FLAVOR. Millions enjoy Continental Coffee because it has the *most* in flavor—delicious, winey-rich, full-bodied and unvaryingly fine—kept so by special Automatic Roasting Controls that maintain exact uniformity.

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W-B Onion Soup Mix
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MACARONI-SPAGHETTI
PANCAKE MIX
WAFFLE—PANCAKE SYRUP
HOT CHOCOLATE
CHOCOLATE SYRUP
HOT FUDGE
SPICES
CHILI CON CARNE
EXTRACTS
COLORINGS
SALAD DRESSINGS
MAYONNAISE
FRENCH DRESSING
THOUSAND ISLAND DRESSING
CREAM DESSERTS, with sugar and milk, Lemon, Chocolate, Butterscotch, Vanilla, Tapioca and Asst'd.
GELATIN DESSERTS, Orange, Lemon, Lime, Strawberry, Raspberry, Cherry Asst'd and Asst'd Red. Plain Unsweetened.
MALTED MILK, plain.

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HOT FUDGE
SPICES
CHILI CON CARNE
EXTRACTS
COLORINGS
SALAD DRESSINGS
MAYONNAISE
FRENCH DRESSING
THOUSAND ISLAND DRESSING
CREAM DESSERTS, with sugar and milk, Lemon, Chocolate, Butterscotch, Vanilla, Tapioca and Asst'd.
GELATIN DESSERTS, Orange, Lemon, Lime, Strawberry, Raspberry, Cherry Asst'd and Asst'd Red. Plain Unsweetened.
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Have you checked on your dishwashing operation lately? Clean dishes are mighty important! They "put in a good word" for your establishment. They keep customers coming back. On the other hand, dirty dishes and spotty glassware can chase customers away faster than anything else.

You have a big investment in dishwashing equipment. Naturally, it's to your advantage to make the most of it. The *right* dishwashing compound protects the investment you've already made in equipment . . . lets it do the completely efficient job it was designed to do. Calgonite is the *right* compound for *your* dishwashing job.

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1. CALGONITE . . . FOR THE BEST DISHWASHING JOB

Calgonite is a full-strength compound containing Calgon® and an effective detergent. Calgonite gets your dishes, glassware and silverware really clean. From a cost-per-clean-dish standpoint, Calgonite is the most economical compound you can buy.

2. CALGONITE ELECTRONIC DISPENSER . . . FOR PRECISION CLEANLINESS

Automatically dispenses the exact amount of Calgonite necessary to maintain an efficient dishwashing solution in a continuous operation.

Be sure you're right...use CALGONITE!®

CALGON, INC., Hagan Building, Pittsburgh 30, Pennsylvania

Executive Dietitians. Two persons —the dietitian herself and the hospital administrator—are needed to make the position of executive dietitian tenable. The dietitian, of course, should have leadership, and the administrator should give her an opportunity to be an executive and stop thinking of the dietary department as the "basement service." The author, a former A.D.A. President, notes this attitude in a recent publication which lists the dietary department as a subdivision of the nursing service. She emphasizes the importance of the dietary department to the hospital administration's success. Discussed in the article are: policy on food costs; the basic requirements of a well controlled dietary department; and the dietitian's specific responsibilities. The author reports on the problems involved when tray service in her hospital was switched from the nursing to the dietary department. The change required evaluation of personnel needs and the establishment of a training program for lay supervisors.

NEWS BULLETIN OF THE NATIONAL RESTAURANT ASSOCIATION

Vol. 34, February, 1953

* How to treat and cure repeat-meal monotony. P. O. Wason.—Supplement.

Menu Variety. Sameness in restaurant menus usually stems from a lack of thinking and planning, say most food service experts. Suggestions are presented for combating monotony, as submitted in the 1952 General Foods contest for restaurant personnel. Some of these include: a "food diary" or recipe file with the date last used on each card; inviting suggestions from customers and employees; offering to "swap" recipes with women customers or awarding free meals in exchange for usable recipes; adding unusual flavorings and garnishes to "dress up" plain meals; and use of left-over foods to make new dishes. Showmanship will also increase interest, e.g., contrasting food colors and textures; appealing words to describe dishes served; eye-catching dining room decorations; menus tied in with holidays; and special days for honoring nationality and other groups. Novel suggestions for variations in service include: out-of-door meals in warm weather; occasional buffet suppers; picnic-style dinners; candlelight service; and letting customers order from free samples passed around on trays.

PRACTICAL HOME ECONOMICS

Vol. 31, February, 1953

* What progress are we making in foods? Reports from the National Food and Nutrition Institute.
  Nutrition—past and future. W. H. Sebrell, Jr.—p. 35.
  Nutritional health of adults in the United States. R. M. Wilder.—p. 36.
  Processing trends and nutritive food values. G. E. Hilbert.—p. 52.
  Consumer protection under existing laws. C. W. Crawford.—p. 53.

Nutrition Progress. Key speeches from the recent National Food and Nutrition Institute are summarized. W. H. Sebrell, Jr., pointed out that today obesity has replaced the vitamin deficiencies as the No. 1 nutritional problem in the U. S. He also feels that correction of subclinical deficiencies is a challenge and that more knowledge of the role of nutrition in old age and chronic disease is needed.

Dr. Wilder stressed that although we rarely see overt signs of deficiency today, the people are skating on thin ice nutritionally. Nutritionists are faced with the problem of diminished interest because of the decrease in deficiencies. If they do not meet the challenge of convincing the public of the value of good nutritional health, the science will wither and die. He pointed out that undoubtedly a large number of subclinical deficiencies still exist which cannot be determined by present-day diagnostic methods. The lack of frank deficiencies should not lull us into complacency.

G. E. Hilbert spotlighted the trend in the last fifteen years to easy-to-prepare foods and the revolution they have made in the food processing industry. He predicts the use of antibiotics and/or electronic radiation in preserving perishable foods.

C. W. Crawford condemned the widespread quackery which has arisen in the field of foods and nutrition. He also pointed out that our present food protection laws do not provide for proper testing of new additives as they are developed.

HOTEL RESERVATIONS
Los Angeles

▶ *36th Annual Meeting, August 25-28, 1953*

Please make your hotel reservations for the 36th Annual Meeting of The American Dietetic Association through: THE CONVENTION AND VISITORS BUREAU, 1151 SOUTH BROADWAY, LOS ANGELES 15, CALIFORNIA. The Bureau will accept either the form given below or a letter containing equally specific information. You will receive confirmation of your reservation.

The Shrine Civic Auditorium and Convention Hall, where daytime meetings and exhibits will be held, are approximately 3 mi. from the hotel area. The hotels listed below are located within a few blocks of the Statler Hotel, the headquarters hotel.

Order of Choice	Hotel	Single	Double	Twin Beds
_____	Statler (headquarters)	$6.50–15	$9.00–16.00	$10.00–20.00
_____	Biltmore	5.50 up	8.50 up	9.00 up
_____	Mayfair	4.50 up	6.50 up	7.50 up
_____	Commodore	3.50 up	5.00 up	6.00 up
_____	Clark	4.00– 6	4.00– 7.00	6.00– 8.00
_____	Mayflower	5.25– 8	5.25– 8.00	5.75– 9.00
_____	Savoy	4.00– 5	5.00– 6.50	5.50– 6.55

☐ With single bed (very scarce; arrange for double occupancy if possible)

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CITY AND STATE.....

ARRIVAL DATE..... DEPARTURE DATE.....

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(Name of person who will share your accommodation)

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only $1\frac{1}{3}$¢ PER SERVING

in handy moistureproof packets

You'll be cutting food costs by reducing waste when you serve PREMIUM SALTINE CRACKERS this new modern way.

- Each package contains the right-sized portion for the average serving.
- Fresher . . . no waste caused by staleness or sogginess . . . always fresh and oven crisp.
- Less breakage...no waste in handling unused loose crackers and bottom-of-the-box pieces.
- Easier to handle...saves time and assures faster service and more appetizing appearance.

OTHER FAMOUS "NABISCO INDIVIDUALS"

FOUNTAIN TREATS less than $1\frac{3}{5}$¢ per serving

DANDY OYSTER CRACKERS less than 2¢ per serving

RITZ CRACKERS only 1¢ per serving

SEND FOR NEW FREE BOOKLET packed with ideas on how to increase sales and cut food cost with NABISCO products including: *PREMIUM Saltine Crackers* • *FOUNTAIN TREATS* • *DANDY OYSTER CRACKERS* • *RITZ CRACKERS* • *OREO Creme Sandwich* • *TRISCUIT Wafers* ®

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News Notes

Northwestern Passage to A.D.A. Convention. As if defying all descriptive phrases except those couched in superlatives, nature in the great Northwest has striven to outdo itself—and has succeeded—in achieving the spectacular and the majestic.

Seeming to taunt the traveler to think up something better, Mother Nature has introduced with a sweeping gesture the wonders of Yellowstone with its perennial show-off, Old Faithful; its rainbow-hued Angels Terrace; its bubbling cauldrons and giant canyons.

Apparently somewhat heady from her imaginative accomplishments in Yellowstone, she turned her energies to shaping the towering peaks of the northern Rockies. Called "The Shining Mountains" by the Blackfoot Indians, this area has become Glacier National Park, a wonderland of lakes, waterfalls, forests, and glaciers.

Although this park may be reached by one of the northern rail routes of this country, it also may be approached from the Canadian side of the border after a stopover at unforgettably glorious Banff National Park. The journey may also be continued through Canada to Vancouver, B.C., by boat to beautiful, old-world Victoria, and thence, again by boat, to Seattle.

Ever zestful and ver atile, nature fashioned what is now the state of Washington with an eye to dramatic contrasts. East of the Cascade Mountains lies the Inland Empire, the fabulous wheat-raising Camas Prairie, the fruit-growing Yakima and Wenatchee valleys.

Here, too, is the Grand Coulee Dam, the world's greatest concrete structure. In prehistoric times, the Columbia River flowed through Moses' Coulee, roaring over a waterfall 400 ft. high. Volcanic activity, however, changed the course of the river, leaving the surrounding country arid. Then the Grand Coulee Dam was constructed, bringing irrigation and fertility to the vast reaches of land.

The western portion of Washington State achieves scenic distinction through its evergreen-clad mountain ranges capped with snow, its innumerable lakes lent enchantment by the irregular waterways and islands of 200-mi.-long Puget Sound.

Standing on a street of hilly Seattle, one may have a panoramic view of far-reaching Lake Washington with the white ridged Cascades in the background, the horseshoe harbor, and imperious Mount Rainier. Claimed both by the cities of Tacoma and Seattle, Rainier holds the uncontested title of the world's largest accessible single peak glacier system, coursed by twenty-eight rivers of ice. Under the glaciers are caves and underground rivers, along which one may walk. The halfway mark up the 14,408-ft. slope may be reached by car over an excellent highway, passing miles of dense forests and fields of brilliant mountain flowers.

The unique feature of the mountain peaks of the Pacific Northwest is their isolation. They are not pinnacles reaching above others in a vast mountain range, but rise, as a result of volcanic action, in solitary majesty. Several of them may be seen from the train—Mount Baker, which is nearest the Canadian border; Mount Rainier in Washington; Mount Hood in Oregon; and Mount Shasta in northern California.

A rail line parallels one of the most wonderful scenic highways in the country—337 mi. along the Columbia River.

Anyone taking the "northwest passage" to California will find that he has journeyed through territory nowhere duplicated in America—aptly described by filmland's most extravagant language—vigorous, robust, grand, peerless, fantastic. Silently, complacently, in the background, Mother Nature will be imagined taking a well-earned bow.

Alumnae Meals. The Alumnae Meals Committee welcomes the opportunity to make arrangements for mealtime reunions of college alumnae, dietetic interns, and professional sororities at the A.D.A. Annual Meeting. The reunions have been scheduled as follows:

Tuesday, August 25:
Evening—Dietetic internships
Wednesday, August 26:
Breakfast—Dietetic internships
Thursday, August 27:
Evening—College alumnae and special groups
Friday, August 28:
Breakfast—College alumnae

Los Angeles offers a wide variety of unusual restaurants. You may enjoy meals with atmosphere, which may require some travel, or the convenience of your hotel. The Committee urges that plans be made immediately so that reservations may be confirmed. The name of the group, its chairman, and the approximate number expected should be sent to Elva A. Hiscock, Dietetic Service, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles 25.

Hotel Reservations for Annual Meeting. On page 392 of this issue of the JOURNAL, a form appears for use in requesting hotel reservations in Los Angeles for the 36th Annual Meeting of The American Dietetic Association, August 25–28, 1953.

Meetings. The *Canadian Dietetic Association* will hold its annual convention in Ottawa from June 15 through 17.

The 30th annual conference of the *American Physical Therapy Association* will be held in Dallas, June 15 through 19.

The 1953 Biennial Convention of the *National League for Nursing* will take place June 22 through 26 in Cleveland.

"You Are the Key to Better Relations" will be the over-all theme of the *American Home Economics Association's* 44th annual meeting to be held in Kansas City, Missouri, June 23 through 26.

Plentiful Foods. The U.S.D.A. lists the following foods as expected to be in plentiful supply during April:

Fruits and Vegetables

Beans—dry Lima and pea	Lettuce
Cabbage	Oranges — fresh and processed
Carrots	Potatoes
Celery	Raisins
Grapefruit—fresh and processed	Tomato juice

Protein foods

Beef	Fish, frozen — mainly cod and haddock
Buttermilk	Lambs, heavy
Cheese, Cheddar	Milk—nonfat dry solids
Cheese, cottage	Turkeys
Chickens—broilers and fryers	
Eggs	

Other foods

Butter	Peanuts and peanut butter
Honey	Salad oils
Lard	Shortening, vegetable
Margarine	

FDA Statement on Antibiotics. The following statement on the addition of antibiotic drugs to foods for human consumption was published in the *Federal Register* for February 25 to announce the Food and Drug Administration's new policy:

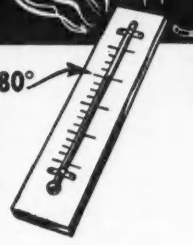
"*Direct or indirect addition of antibiotic drugs to foods for human consumption.* (a) The Food and Drug Administration has received inquiries concerning the use of antibiotic drugs as food preservatives. Careful consideration has been given to this question and the conclusion has been reached that such use constitutes a public-health hazard. Consumption of food so treated may cause sensitization of the consumer to such antibiotics and may result in the emergence of strains of pathogenic microorganisms resistant to these drugs.

"The presence of antibiotic drugs in foods intended for human consumption, or the direct or indirect addition of such drugs to such foods, may be deemed an adulteration within the meaning of section 402 of the Federal Food, Drug, and Cosmetic Act."

Talks on Diet for Heart Patients. Again this year the Chicago Heart Association, in cooperation with the

TOLEDO DISHWASHERS
Now offered with
NEW BOOSTER HEATER

Model TRG Booster may be ordered with any current model Toledo Door-Type Machines—either manual or automatic.



- **Boosts Pre-Heated Water to provide 180° Sanitizing Rinse.**
- **Compact Dimensions**
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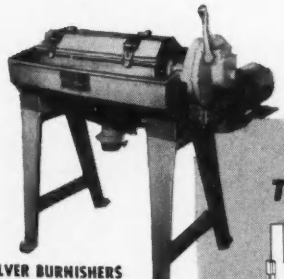
- **Teams with today's Toledo Door-Type Dishwasher for top efficiency.**

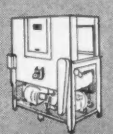
Now—there is assurance of plenty of 180° sanitizing rinse water. This booster heater steps up pre-heated water to provide the 180° rinse water to operate Toledo Door-Type Dishwashers at peak efficiency. The result—dishes will air-dry quickly after going through the hot rinse. This eliminates unsanitary methods of toweling or wet stacking. Water tank is extra heavy with multi-flue construction for rapid heating. 4-½ gallon storage. Rapid replacement capacity. Compact design. Combines with the modern Toledo Dishwasher Features—3-Way Doors, Zip Locks and Electrical Controls as a cost-saving unit. Write for bulletin SD-90. Toledo Scale Company, Rochester Division, 245 Hollenbeck St., Rochester, N. Y.

SERVICE Factory-Trained 200 Cities



SILVER BURNISHERS Polished steel burnishing balls smoothly "roll" out nicks and scratches, restoring original lustre and new appearance.

TODAY IT'S TOLEDO® ALL THE WAY!


Dishwashers

Slicers

Steak Machines

Choppers

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Chicago Dietetic Association and the Chicago Home Economists in Business, is presenting a series of four talks on diets for patients with cardiac disease. These discussions, on April 6, 13, 20, and 27, will include demonstration instruction in preparing low-sodium and low-calorie diets. Dietitians, nutritionists, and patients or food-preparing members of their families, if referred by a physician, will attend.

Conference on Gerontology. Vera W. Walker, A.D.A. representative at the Third Annual Conference on Gerontology, University of Florida, reports that primary consideration was given to meeting some of the health needs of older persons in the state of Florida, looking toward the establishment of a medical school. The first Southern Conference in 1951 considered the nature and significance of the problems arising from the increase of older people in our population. In 1952, the Second Conference was concerned with the special needs of our older population: health, housing, recreation, part- or full-time employment, religion, and so on. Participants in this year's conference were largely physicians and Ph.D.'s, whereas the groups in previous years have included representatives of various lay disciplines.

Dr. John S. Allen, Vice President of the University and Conference Chairman, pointed out the problem of a high proportional older population in Florida, stating that although such states as Pennsylvania and New York have more older people than Florida, the percentage of the total population of 3 million in Florida has changed the average figure and created a number of problems.

Dr. Edward L. Bortz, University of Pennsylvania and Lankenau Hospital, Philadelphia, and Dr. Frank Sladen, Henry Ford Hospital, Detroit, agreed that geriatrics should not be a specialty, for it would tend to set the older group apart. Dr. Bortz believes that, on the other hand, there is need for further study and specialization, perhaps in the specific health problems of the older person, notably vascular breakdown, cancer, collagen disorders, and medical disorders, all of which may be affected by nutrition.

Other speakers discussed economic and emotional problems of older people.

Minnesota Continuation Course. The annual continuation course in clinical dietetics of the University of Minnesota was held March 2 to 4 in Minneapolis. During the two-and-a-half-day session, recent advances in the field of clinical dietetics were considered. Such conditions as obesity, rheumatoid arthritis and gout, peptic ulcer, spastic bowel, and old age and their relation to diet were considered. The preparation of diets and the use of mineral-enriched meats in milk-free diets were discussed, as were test diets in the diagnosis of disturbances of fat and calcium metabolism. Other talks covered administrative aspects of dietetics.

Kansas State Offers Workshops. The Department of Foods and Nutrition, Kansas State College, is offering two summer workshops in home economics for dietitians, extension and home service personnel, home economics teachers, school food service workers, and public health nurses. The first workshop, dealing with food preservation, will be held June 8 to 20 primarily for teachers, home demonstration agents, and home service personnel. The second workshop will be concerned with human nutrition and will be held June 29 to July 10. These two workshops are planned to precede and follow the annual meeting of the American Home Economics Association in Kansas City. For further information, write the Department of Foods and Nutrition, Kansas State College, Manhattan.

Workshop in Applied Nutrition. "Good Nutrition throughout Life" is the theme of the Workshop in Applied Nutrition which the Department of Home Economics, University of Kentucky, and the American National Red Cross will jointly sponsor July 6 through 18 on the University campus. The program will include lectures on nutrition as well as workshop group study of the specific interests of those enrolled and evaluation of nutrition materials, including audio-visual aids. The course may be taken without credit or for either graduate or undergraduate credit, depending on the amount of work invested. Further information may be obtained

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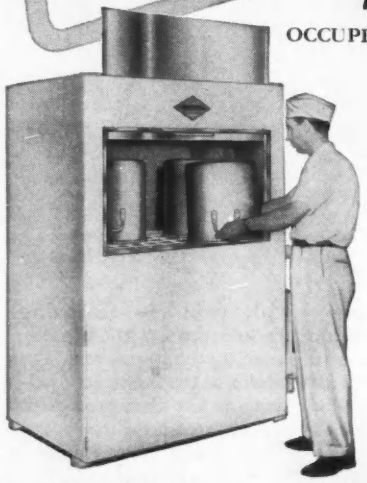
ALVEY - FERGUSON POT AND PAN WASHER
MODEL MK

Amazingly Compact!
OCCUPIES FLOOR SPACE OF ONLY 3'4"x4'8"



Now *your* kitchen can *machine-wash* and rinse all pots, roasting pans, steam table pans, kettles and utensils—even 80 quart mixing bowls!

No more slow, old-fashioned soaking and scraping! This new A-F Model MK "Panhandler"—with automatic wash timer—uses the powerful A-F Super-Spray pressure system which removes even the most obstinate residues from pots and pans—in one washing!

Low Initial Cost . . .
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And the A-F Model "MK" is so compact that it can be easily placed in any convenient corner or alcove.
Can be furnished for gas, steam or electric heating.

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The ALVEY-FERGUSON COMPANY
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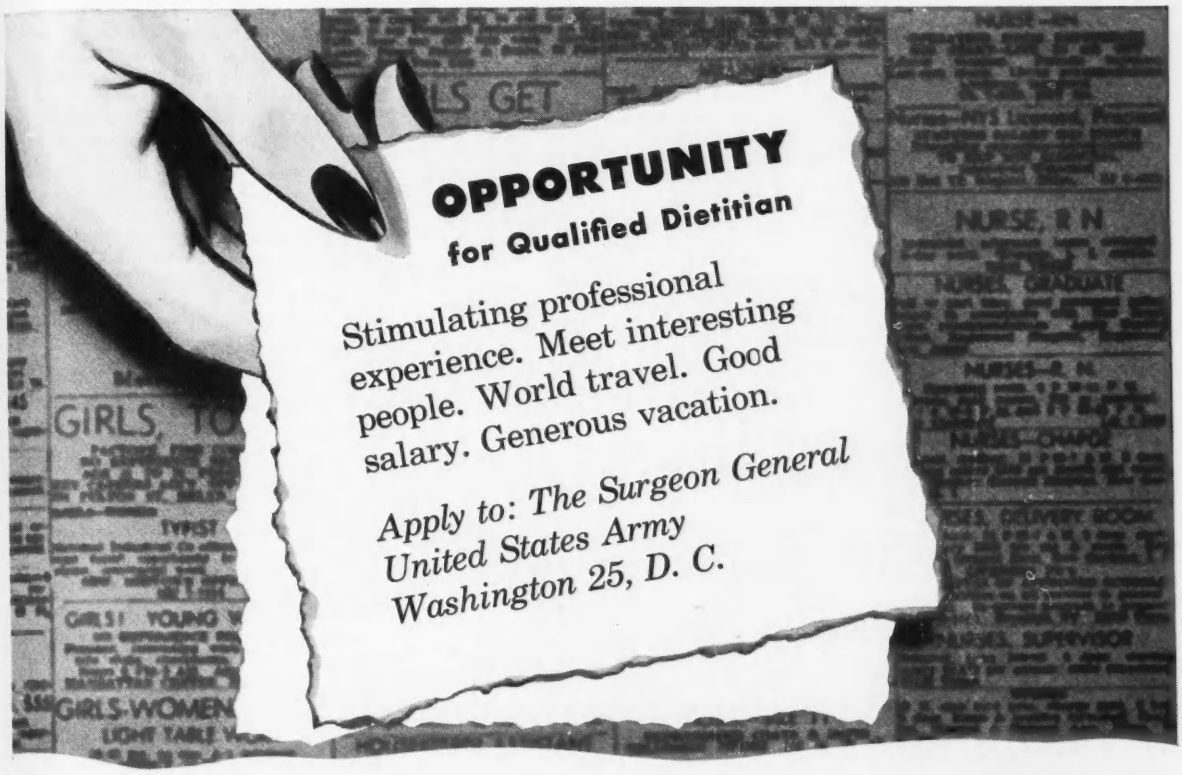
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Stimulating professional experience. Meet interesting people. World travel. Good salary. Generous vacation.
Apply to: The Surgeon General
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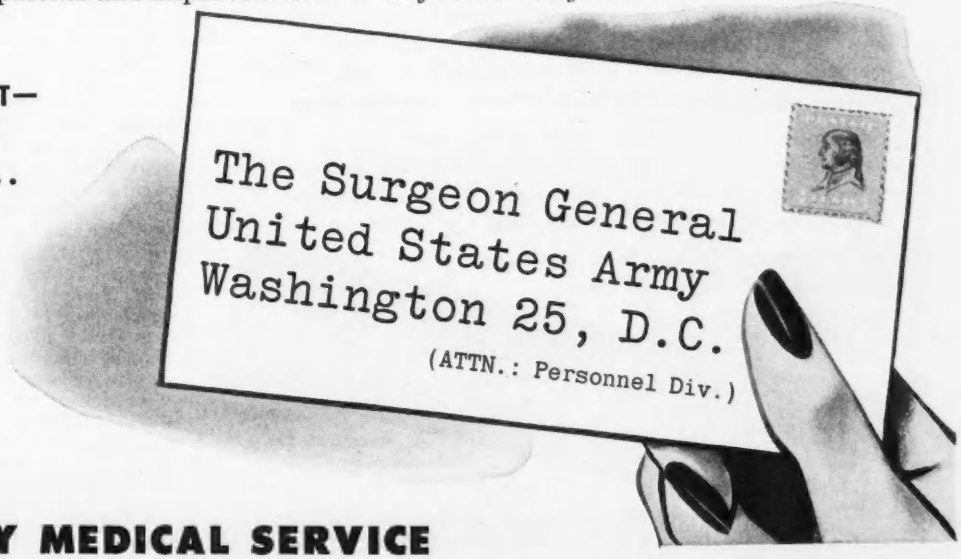
If you like meeting new people; if you like working with a group of trained Medical Specialists—then you will find an exciting, new and satisfying life in the Women's Medical Specialist Corps. You will be in constant touch with the latest developments and improved techniques in dietetics—and your work will take you all over the world. You serve as a commissioned officer, enjoying equal pay, equal rank, equal benefits with male officers. Most important of all, you will be doing a vital job in the interest of your country.

DON'T WAIT—
write today
for details...



U. S. ARMY MEDICAL SERVICE

from Dr. Statie E. Erikson, Head, Department of Home Economics, University of Kentucky, Lexington.

Dietary "Flyer" Wins Award. Josephine Mingrone, Therapeutic Dietitian, Greenwich (Connecticut) Hospital Association, received an award at the New England Hospital Assembly's annual convention in Boston on March 23, for her "Good Health" leaflet which is given to patients at Greenwich Hospital on admission. The leaflet, attractively decorated, contains directions for making choices from the selective menu, lists the qualifications for an adequate diet, and gives notes about the functions of the dietary department.

National Restaurant Foundation. Plans and fund-raising are under way for the establishment of the National Restaurant Foundation, according to Andrew J. Crotty, Jr., a past-president of the National Restaurant Association and Chairman of the Foundation's Board of Trustees. The purpose of the Foundation, which will be a nonprofit corporation, is to promote, aid, or engage in educational activities and scientific research in the broad fields of nutrition, public health, preparation of food, equipment research, human relations studies, and other subjects insofar as they relate directly or indirectly to the restaurant industry and its service to the public. Grants of $17,000 have been received by the Foundation to date, the first $5000 having been contributed by the trustees. Contributions are being accepted from any restaurant or firm allied to the restaurant industry. Further details are obtainable from: The National Restaurant Foundation, 8 South Michigan Avenue, Chicago 3.

Government Publications. *Bibliography of Recent Publications Related to Food Management in Institutions* is a ten-page mimeographed list of references prepared by the Bureau of Human Nutrition and Home Economics, U.S.D.A. Titles of publications are listed under the following subject-headings: general references; food purchasing and storing; food preparation and serving; equipment; employee supervision and training; nutritional and cost accounting; and miscellaneous references. Periodical references, books, bulletins, cards, and films are included. This bibliography is available on request from the Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture, Washington 25.

Diabetes, an informative leaflet recently released by the U. S. Public Health Service as Publication No. 137, contains facts on incidence, symptoms, diagnosis, and control of diabetes. Copies of this leaflet, which is also numbered Item 486 in the Health Information Series, are available from the Government Printing Office, Washington 25, for 10 cents each or $4 per thousand.

"Why Whack Them Up?" is the catchy title of a reprint from *Marketing Activities*, published by the Production and Marketing Administration, U.S.D.A. This article discusses proper methods of cutting poultry into parts for frying and for retailing. Two methods, each consisting of nine steps, are illustrated by photographs. Cost charts for chicken and turkey are included, showing the estimated cost of parts to the retailer, based on various wholesale prices of the fowl. This reprint is available from the Production and Marketing Administration, U. S. Department of Agriculture, Washington 25.

Booklet on Community Meals. *Planning Community Meals* has been released as Service Bulletin, SB-5 of The Ohio State University's Agricultural Extension Service. Prepared by Virginia Harger, Assistant Professor of Institution Management, this thirty-two-page bulletin contains sections on: planning, food preparation, serving, clean-up, written reports, suggestions for making work easier, and a bibliography of seventeen references to large-quantity recipe sources. Tables include an organizational plan for a community meal, a sample recipe form, a table of equivalent weights and measures, eight tables to aid in estimating amounts of food to buy for fifty persons, a sample work plan for a preparation committee, and serving setups. *Planning Community Meals* is available for 15 cents a copy from the Agricultural Extension Service, The Ohio State University, Columbus 10.

Exchange Lists in Spanish. A Spanish translation has been made of

NARY A CHIP...to mar it's beauty!

Takes the high cost out of Breakage Replacements..

Molded of Modern MELMAC Plastic for Long-Lasting Service and Beauty

Now you can have beautiful dinnerware—finest quality for quantity food service—and cut replacement expense as much as 80%. Arrowhead is molded of the durable new melamine plastic, actually hard to chip, crack or break, in the popular wide rim pattern that shows off food to best advantage.

And you'll gain additional savings in time and labor because Arrowhead is light weight, easy to handle and easy to wash. Safe in automatic dishwashers and boiling water, it passes the most rigid sanitary standards.

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A complete line in five lovely pastel shades.
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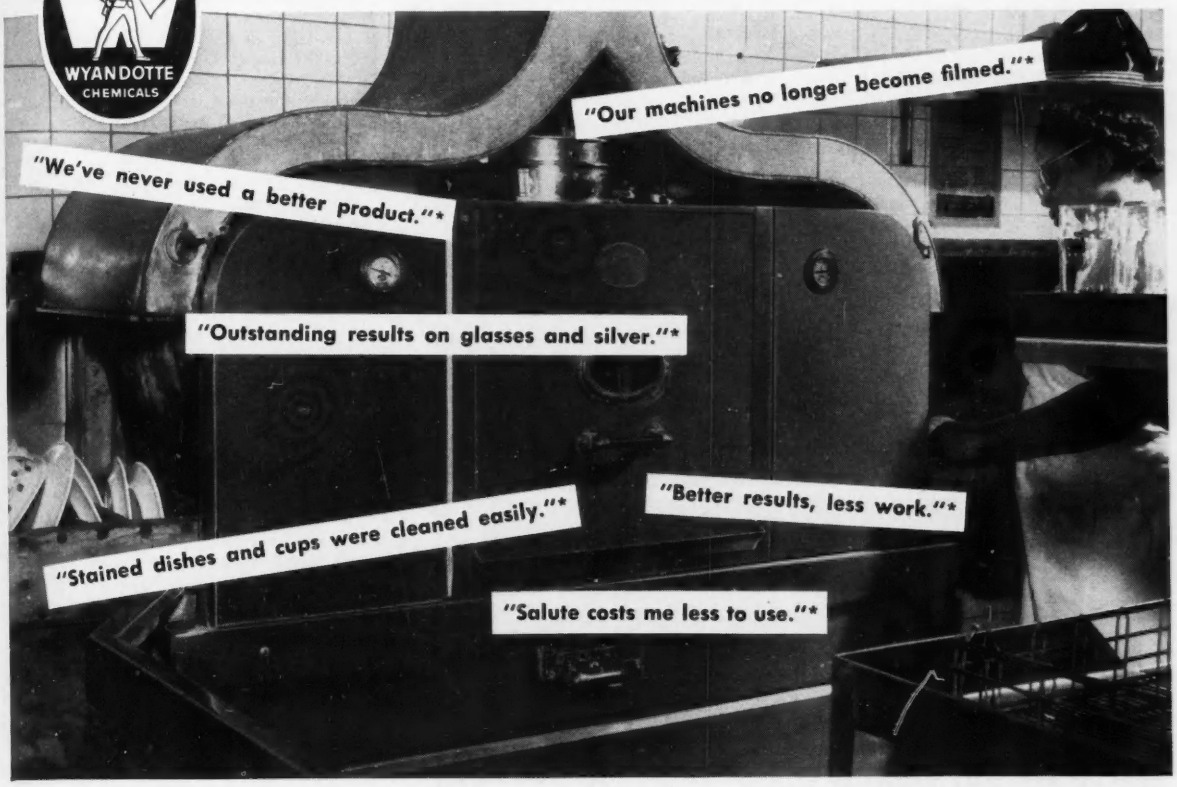
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"We've never used a better product."*
"Outstanding results on glasses and silver."*
"Better results, less work."*
"Stained dishes and cups were cleaned easily."*
"Salute costs me less to use."*

You can "outsparkle" competition with SALUTE *in your machine dishwashing*

"SALUTE stops stains, streaking, spotting . . . *SAVES MONEY*"

*says Airline Caterer**

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SALUTE is a sensational Wyandotte product for machine dishwashing, which washes dishes better in everyday use, keeps china and plastic ware clear and stain-free. It's so effective that one soak in concentrated solution clears up dishes already stained. SALUTE makes glassware and silver sparkle, too, and keeps your machine free of scale and film. TRY IT!

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A SUPERIOR product for hand dishwashing. FAME contains Wyandotte's NEW, EXCLUSIVE, superactive wetting agents . . . and is easy on the hands.

SALUTE, FAME and other Wyandotte products for specialized cleaning needs, are stocked by leading jobbers in the U.S. and Canada. Ask your jobber or the Wyandotte representative to demonstrate amazing SALUTE or FAME. *Wyandotte Chemicals Corporation, Wyandotte, Mich. Also Los Angeles 12, California.*

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Largest manufacturers of specialized cleaning products for business and industry

the exchange lists for diabetic diets compiled by the American Diabetes Association, A.D.A., and the U. S. Public Health Service. The translation was done by Johanna Gates, Food Clinic Dietitian at the University of Colorado Department of Medicine, Denver, at the request of the dietary staff who must handle many Mexican patients who do not understand English.

Pamphlet on Food Tables. *Food Value Tables Expressed in Circle Graphs*, by Eula Bee Corban, Assistant Professor of Home Economics, Queens College, Flushing, New York, is a thirty-one-page offset pamphlet devised for use in a short nutrition course. Food values are given as percentages of the Recommended Dietary Allowances, with the correct portions shaded in pie charts. In each case, the food values are given for only one measure for each food, i.e., ½ c. apple juice or 2 slices of broiled or fried bacon. Values were calculated from Bowes and Church, Taylor, and Agriculture Handbook No. 8. Nutrients considered are: calories, protein, calcium, iron, vitamin A, thiamine, riboflavin, and ascorbic acid. This pamphlet is available from the author for 40 cents a copy.

Cornell Bulletins on Camp Food Service. Two new bulletins, *A Central Camp Building for Administration and Food Service* and *Camp Food Service Management*, have been issued by the New York State College of Home Economics, Cornell University. The first booklet was developed in response to inquiries from camp managers about the space required for food service and the kitchen equipment needed. The second is a revision of the material which appeared in the College's earlier Leaflet No. 2, *Camp Kitchen Management*. These publications are available from Mailing Room, Roberts Hall, Ithaca, New York, for 25 cents each.

Katharine Fisher Retires. March 1 marked the retirement of Katharine A. Fisher, for many years Director, Good Housekeeping Institute, New York City. Miss Fisher has been an A.D.A. member since 1918, and is also a charter member of the American Home Economics Association. Before coming to the U. S. from Canada, Miss Fisher was Head, School of Household Science, Macdonald College, McGill University, Montreal. While there she extended the work in homes of Quebec Province, in forming Homemakers' Clubs which later became the Women's Institutes of the Canadian government, which provide work similar to the home demonstration work in this country. She also initiated a course in institutional management, which included the training of dietitians for hospitals and other institutions. She was later on the faculty of Teachers College, Columbia University, leaving there to join the Good Housekeeping staff.

Clinics for Hospital Administrators. A new educational opportunity will be offered by the American College of Hospital Administrators, April 28 through 30 in Chicago, when a series of introductory Administrative Clinics will be held. This new medium has been planned as a consequence of the Pilot Study Administrative Externship Program held in December, in which six hospitals and thirty-six members of the College participated. The clinics will be held in hospitals, thus giving an action-type educational experience for the participating administrators. They will be designed to meet the needs of small, medium-sized, and large hospitals, and each clinic will be limited to not more than seven administrators working in one hospital.

Omicron Nu Meeting. Omicron Nu will hold its nineteenth Conclave from June 19 through 21 at Iowa State College. These dates are the weekend preceding the American Home Economics Association convention in Kansas City. Further information may be obtained from Marie Budolfson, Division of Home Economics, Iowa State College, Ames.

Bread Stuffing Guide. The American Institute of Baking has recently published a revised *Bread Stuffing Guide*, replacing the former "Quantity Stuffing Guide." It features a simplified recipe guide to indicate how much stuffing to prepare for poultry ranging from 4 to 20 lb. Basic directions and pointers for preparation of stuffing and for roasting poultry are given. The *Bread Stuffing Guide* is available on request from the

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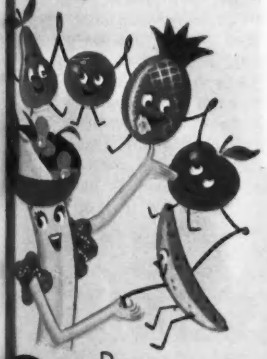


Bananas combine beautifully with all fruits... fresh, canned or frozen

BANANA GRAPEFRUIT SALAD

(1 large individual serving)

3 grapefruit sections, fresh or canned	Salad greens
1 ripe banana*	Berry or cherry

**Use fully ripe banana . . . yellow peel flecked with brown*

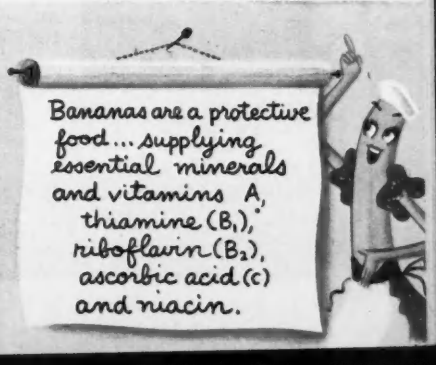
Arrange overlapping grapefruit sections along center section of salad plate. Peel banana and slice crosswise into pieces about ¼-inch thick. Arrange 2 rows of overlapping banana slices around sides of plate. Garnish the center with crisp salad greens and berries or cherries, if desired. Serve with sweet or tart dressing.

Important: Pink and white grapefruit sections combined make an especially pretty salad arrangement.

If desired, orange sections may be used in place of, or combined with, the grapefruit sections.

HOME ECONOMICS DEPARTMENT · UNITED FRUIT COMPANY, Pier 3, North River, New York 6, N. Y.

For sweetness, digestibility and peak of flavor choose fully ripe bananas... yellow peel flecked with brown... for salads.



Bananas are a protective food... supplying essential minerals and vitamins A, thiamine (B_1), riboflavin (B_2), ascorbic acid (C) and niacin.

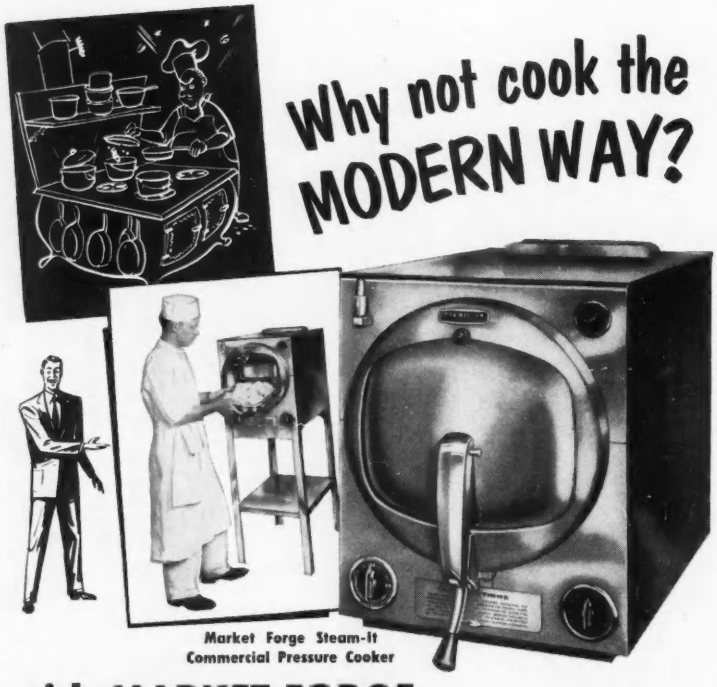
American Institute of Baking, 400 East Ontario Street, Chicago 11.

Booklet on Rice. "Rice. . . . The Most Important Food in the World" has recently been released by Rice Consumer Service. This twelve-page booklet discusses rice from the standpoint of its being virtually the only food of millions of orientals. The history of rice in Europe and the U. S. is also briefly traced, and American rice culture is compared with the Oriental method. Rice milling, as done in the U. S., is also discussed. The latter portion of the booklet deals with the nutritive value of rice, and gives directions for cooking rice, adapted to modern U. S. utensils and measurements. Dishes from all over the world utilizing rice are listed, and new products with rice as a basis are mentioned briefly. The booklet is obtainable from Rice Consumer Service, Inc., 10th Floor Realty Building, Louisville 2, Kentucky. Individual copies are obtainable on request, and copies for classroom study are free on request of teachers.

Storing Dry Milk. Here's how to store dry milk, according to the Bureau of Human Nutrition and Home Economics, U.S.D.A.: (a) Store milk powder in a cool, dry place, preferably not warmer than 75°F. It should keep on the shelf for several months. Nonfat dry milk, however, keeps somewhat better than whole milk powder. (b) If milk powder is to be put in a refrigerator, it should be transferred to an air-tight jar or can. The container should be tightly covered, and closed at once after use, because milk powder absorbs moisture and becomes lumpy if exposed long to air. (c) Fluid milk made from milk powder needs to be kept cool, clean, and covered as does other fluid milk. It should be kept in the refrigerator if not used immediately after mixing.

Restoring Chocolate Flavor. Chocolate manufacturers and Department of Agriculture plant scientists have been working with Latin American governments to improve cacao and thus return old-fashioned flavor to chocolate. Dr. Robert Fowler, horticulturist of the Department's Office of Foreign Agricultural Relations at the Estación Experimental Agricola in Ecuador, reports that the Cacao Nacional tree used before 1900 for chocolate beans, has been replaced in commercial use by inferior cacao trees which were more profitable, owing to earlier and larger harvests and less strict cultivation requirements. Plantations were also abandoned when falling prices of cacao between the World Wars caused economic losses. Additional troubles were diseases of trees and the increasing competition from new plantations of ordinary trees in West Africa, now the world center of cacao production. Plant scientists are now trying to develop a high-yielding, disease-resistant variety of tree which will be easy to grow yet will yield a top-quality, fine-flavored bean. Ecuador, for example, has established a cacao research station in cooperation with the U. S. Point Four program.

Tips on Cornmeal Cookery. Research workers at the Texas Agricultural Experiment Station urge the use of enriched cornmeal and grits, but it is pointed out that full benefit from enrichment calls for cooperation from the cook. Tests of corn bread, spoon bread, pone, cornmeal, and cooked grits showed that thiamine is the only nutrient likely to suffer important losses in cooking. The Texas researchers found that overuse of baking powder and sodium bicarbonate destroys thiamine in such baked dishes as corn bread and spoon bread, as well as decreasing palatability. It is advised not to use more than 1½ tsp. baking powder to 2 cups cereal (meal and flour mixed), and no more than ½ tsp. sodium bicarbonate to 1½ cups sour milk. Seventy-five recipes for corn bread, collected from Texas homes, show that many cooks use too much of these leavenings. Nearly half used enough leavening to destroy considerable thiamine in baking, and one-third called for enough to destroy all thiamine added by enrichment. Short cooking time also helps save this vitamin. Mush and grits cooked 30 min. or less are palatable, hold thiamine, riboflavin, and niacin, and are stiff enough to slice for frying when cold. However, frying added to cooking causes some additional loss of thiamine, and this is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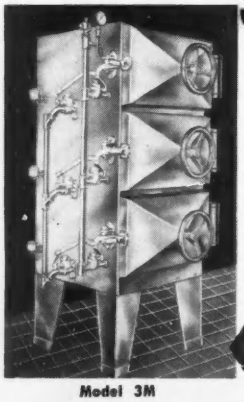
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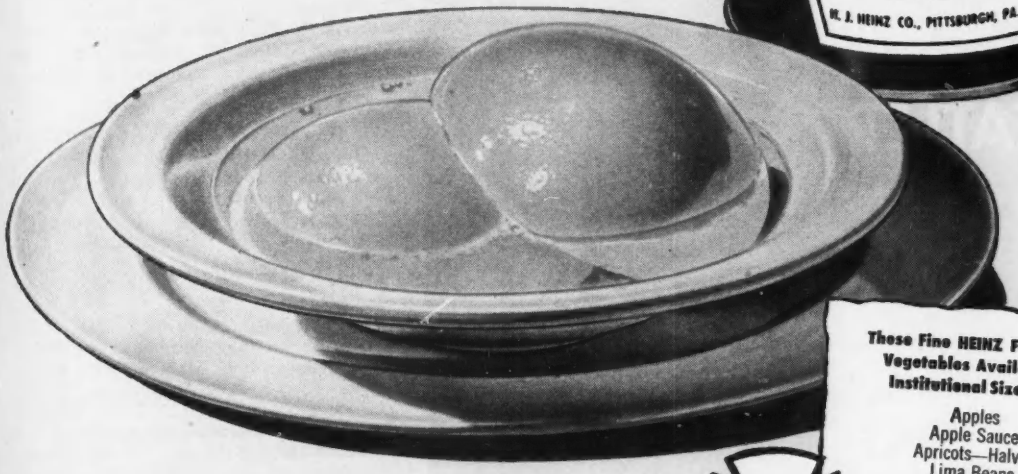

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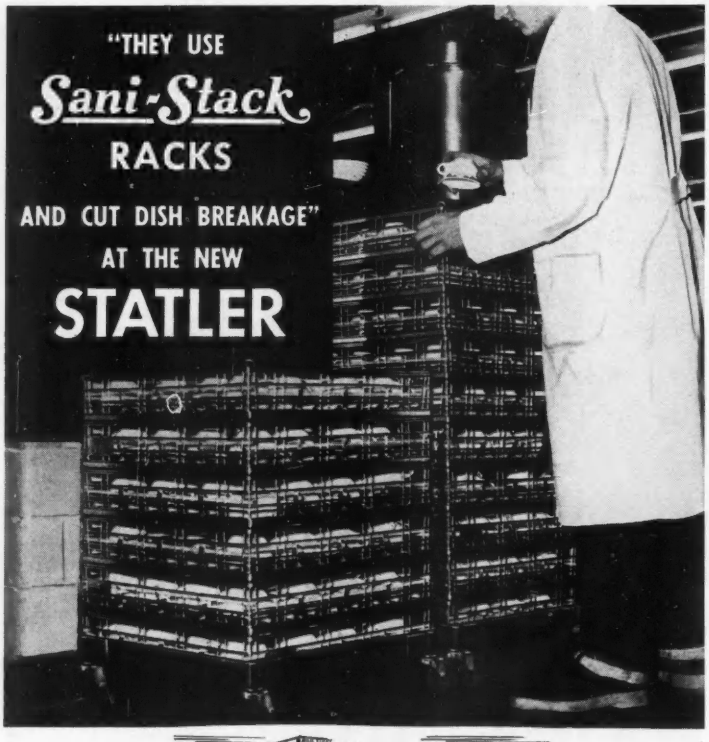
worthy consideration in respect to fried cooked grits and mush if the diet is low in thiamine.

Ascorbic Acid Retention in Asparagus. Proper handling is important in conserving ascorbic acid in asparagus. The Minnesota Agricultural Experiment Station has found that freshly gathered asparagus which was rapidly cooled to about 40°F. by immersing in an ice-water bath to simulate hydrocooling retained twice as much of the vitamin as a comparable lot placed upright in moist moss and stored overnight in a cool place to simulate the usual growers' practice. The "hydrocooled" samples continue to be about twice as rich in ascorbic acid as the uncooled samples, after blanching, freezing, freezing storage, and cooking.

Virginia Rudy Carlin. The A.D.A. office has been notified of the recent death of Virginia Rudy Carlin. Miss Carlin became a member of the Association in 1934 and a life member in 1947. Most recently she had been employed as dietitian at Finch Memorial Hospital, State College of Washington, Pullman. During the war, she had been an Army dietitian.

Sally Lou Hovey. Word has been received of the death on September 12 of Sally Lou Hovey. Miss Hovey, who had been an A.D.A. member since 1944, was employed as Assistant Dietitian, Tamphus County Memorial Hospital, Ithaca, New York, at the time of her death. She had also been on the staffs of Brooke General Hospital, Fort Sam Houston, Texas, and The Presbyterian Hospital, New York City.



The new $25,000,000 Los Angeles Statler is the last word in modern hotel design and equipment. Its service-concious management has selected Sani-Stack racks to speed up dish handling, save space and cut costly breakage to a minimum.

In the photograph a bus boy is delivering clean cups to a service station. After the clean cups are taken, the Sani-Stack racks will be loaded with soiled cups, re-stacked on the dollies, wheeled to the washing machine, washed, re-stacked and returned to the service station without being touched by human hands.

This is but one example of many ways that Sani-Stack racks cut handling, save space and labor and cut breakage costs.

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News of State Associations

Arkansas Dietetic Association. Members of the Arkansas Dietetic Association met at the Baptist State Hospital, Little Rock, on February 9 to hear Dr. Carrol F. Shukers, VA Hospital, Little Rock, discuss "Nutrition Studies on Eskimos." Dr. Shukers' talk was illustrated with colored slides made during the months he spent in Alaska.

California Dietetic Association. The *Bay Area* of the California Dietetic Association held a six-week refresher course in food administration at Herrick Memorial Hospital beginning January 15. At the regular monthly meeting in January a panel discussion was presented on "The Problems Involved in Training Food Service Personnel" by: Mildred Barnard, San Francisco City College Hotel and Restaurant School; Verdi Miller, VA Regional Office; and Elvina Zeibak, University of California Hospital.

Hawaii Dietetic Association. In January the Hawaii Dietetic Association and the Hawaii Home Economics Association were co-hostesses to the University of Hawaii Home Economics Department. Lucile Rust, Kansas State College, Manhattan, spoke on experiences in New Zealand on a Fulbright scholarship.

The Diet Therapy Committee of the Hawaii Dietetic Association has revised the Hawaii Diet Manual which will be published in May.

Illinois Dietetic Association. On March 12 and 13, the Illinois Dietetic Association met in Chicago. The program included the following sessions:

Diet Therapy
- "Nutritional Problems in Preoperative and Postoperative Care"—Dr. Charles B. Puestow, Chief of Surgery, VA Hospital, Hines, Illinois
- "Role of the Dietitian in Treatment of Disturbed Children"—Dr. E. Falstein, Psychiatric Institute, Michael Reese Hospital, Chicago

Professional Education
- "Evaluating Student Nurses' Learning Experiences"—Eleanora Sense, Wesley Memorial Hospital, Chicago
- "The Dietitian's Professional Training: Past—Present—Future"—a panel discussion featuring a college instructor, a hospital dietitian, an executive dietitian, and a college dietitian

Food Administration
- "Hospital Food Service—Problems of Fiscal Control"—Robert Sigmond, Director of Fiscal Studies, Commission on Financing Hospital Care, Chicago
- "Management and Equipment"—

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"Using Community Resources—the Socio-Drama"—a panel with participants including a physician, hospital nurse, dietitian, medical social worker, supervising public health nurse, public health nutritionist, public health nurse, and school nurse

The banquet speaker for this meeting was Everett Jones, Editor, *Modern Hospital*, who spoke on "Food and Food Service in Hospitals."

Kansas Dietetic Association. Several members of the Kansas Dietetic Association have recently taken an active part in meetings of other organizations. Sallie Krieg, University of Kansas Medical Center, Kansas City, presented a talk on "Diet Modifications in Heart Disease" at the Postgraduate Teaching Course on Cardiac Nursing. This course was presented for nurses by the Second District Missouri State Nurses Association and the Greater Kansas City Heart Association. . . Berdena Rosenow, University of Kansas Medical Center, discussed the A.D.A. booklet, *Eating Is Fun—for Older People, Too!* for the Nursing Home Operators of Kansas City. . . Ruth Gordon and dietetic interns, also of the University of Kansas Medical Center, made floor plans for remodeling the food production unit at Gillis Home, an institution for orphans and children of the court in Kansas City, Missouri. . . Virginia Toews, University of Kansas Medical Center, has been invited by the National League for Nursing to assist in preparing subjects in the area of nutrition for the next series of State Board Test Pool Examinations.

Maine Dietetic Association. The fall meeting of the Maine Dietetic Association was held in Portland. Dr. Edward Colby, Director, Portland Department of Health, discussed the Food Handlers School recently held there and the importance of a continued effort to raise sanitation standards in commercial eating places. "Adequacy of Hospital Diets" was the topic chosen by Anna M. Light, Director of Home Economics, University of New Hampshire, and an exhibit of equipment was presented in a skit by Alice Easton and her staff from the H. A. Johnson Company, Boston.

Officers of the Maine Dietetic Association for 1952–53 are: President, Wanda J. Zendzian, VA Hospital, Togus; President-Elect, Mary Ross, Maine Department of Health and Welfare, Augusta; Secretary, Dorothy L. Woodcock, VA Hospital, Togus; and Treasurer, Charlotte Peirce, Goodall Memorial Hospital, Sanford.

Minnesota Dietetic Association. Members of the Minnesota Dietetic Association are again cooperating with the Minnesota Home Economics Association in joint sponsorship of the annual "Careers in Home Economics Workshop." The workshop, being held April 16 through 18 on the University of Minnesota campus, includes a panel discussion in which a homemaker, a dietitian, a teacher, and an extension worker will speak on their fields.

Officers of the Minnesota Dietetic Association for 1952–53 are: President, Dr. Jane M. Leichsenring, University Farm, St. Paul; President-Elect, Ethel Heaberlin, Division of Public Institutions, St. Paul; Secretary, Margaret Pewters Kienzle, Glen Lake Sanatorium, Oak Terrace; and Treasurer, Alberta Gurtler, Ramsay County Welfare Board, St. Paul.

The *Central Minnesota Dietetic Association*, newest local group in Minnesota, has as its president Sister M. Glenore, St. Cloud Hospital. "Safety in the Dietary Department" was the theme of its September meeting, held at the VA Hospital, St. Cloud, and "Cake Decoration" was discussed in January at St. Gabriel's Hospital, Little Falls. The Association has planned to meet five times a year, usually at the time of the district nurses' meeting although not always at the same place. An additional project this year is cooperation with local schools during career week.

The *Head of the Lakes Dietetic Association's* January meeting was a dinner on the Duluth campus, University of Minnesota, featuring a panel discussion on special diets. In April, Robert Pierce will address the group on "Speech as It Affects You and Your Profession." Officers of this Association are: President, E. Wynona Irwin, Moose Lake

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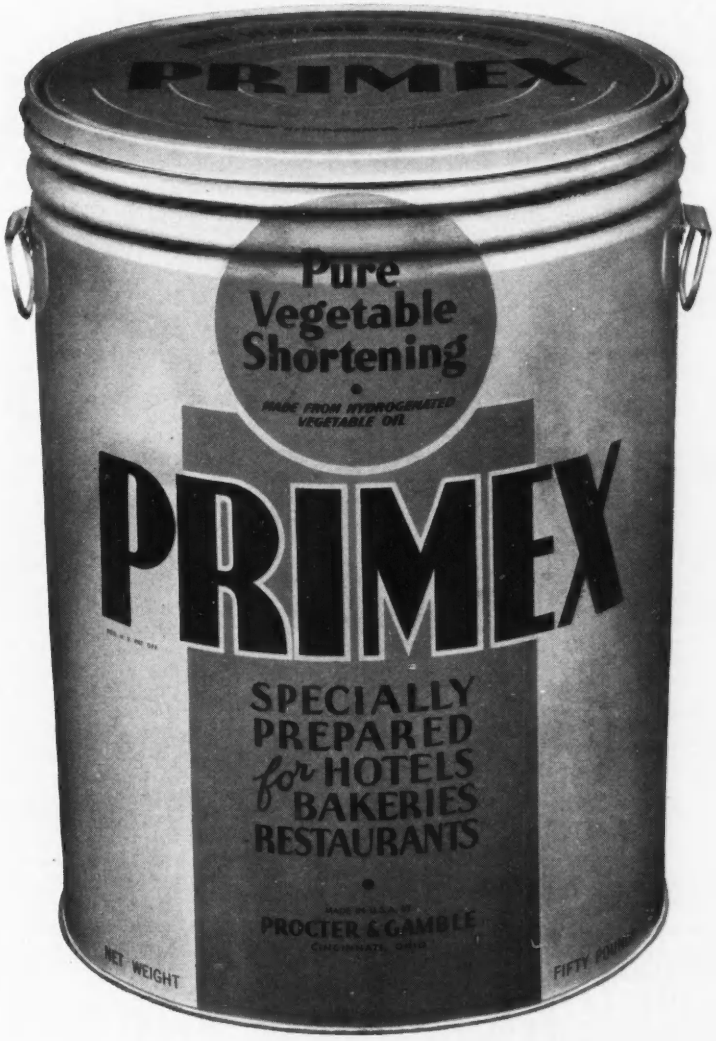

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State Hospital, Moose Lake; Vice-President, Harriet Hill, Duluth; and Secretary-Treasurer, Ruth E. McCoy, Duluth.

The *Twin City Dietetic Association* has as its special project for the year a comprehensive survey of working conditions and salaries for dietitians in the Minneapolis-St. Paul area. Officers for 1952-53 are: President, Lucy S. Mulqueen, Student Health Service, University of Minnesota, Minneapolis; Vice-President, Rosemary Chaix, St. Paul; Secretary, Maureen Reilly, St. Paul; and Treasurer, Mary Des Lauriers, St. Mary's Hospital, Minneapolis.

Mississippi Dietetic Association. The annual meeting of the Mississippi Dietetic Association was held in Jackson in November. Dr. R. V. Platou, Tulane University School of Medicine, spoke on "Prenatal Influence." Slides from Dr. Platou's practice illustrated the lecture, emphasizing the importance of improved prenatal diets to healthy infancy. Dr. Loraine Myers, University of Mississippi, discussed "Recent Trends in Diabetic Research." Alice Glenn Keaton, Mississippi Board of Health, gave the luncheon address, "Recent Advances in Nutrition."

Members of the Mississippi Association have cooperated with the Mississippi Home Economics Association in a joint campaign to promote milk consumption in state institutions. A joint planning meeting was held at the University of Mississippi, and letters were written to institutions throughout the state. Sixty-three of the institutions subsequently requested additional service from the committee.

Officers of the Mississippi Dietetic Association are: President, Helen Arrington Davis, King's Daughters Hospital, Greenville; President-Elect, Alice Glenn Keaton, Mississippi Board of Health, Jackson; Secretary, Sister Mary Jude, St. Dominic's Hospital, Jackson; and Treasurer, Dr. Blanche Tansil, University of Mississippi, University.

New Jersey Dietetic Association. Hospital administrators were the guests at the January meeting of the New Jersey Dietetic Association held at the Presbyterian Hospital in Newark. Evelyn A. Carpenter, Philadelphia Hospital for Contagious Diseases, discussed "The Dietitian's Responsibility for Providing and Maintaining Quality Food Service," and Dr. W. J. Donnelly, Administrator, Greenwich (Connecticut) Hospital Association, spoke on "The Responsibility Management Assumes in Providing and Maintaining Quality Food Service."

As part of the New Jersey Association's program this year, the Food Administration Section is sponsoring a four-evening "Food Cost Control Institute" to be conducted at Presbyterian Hospital, Newark, by Dr. Neva H. Radell of Teachers College, Columbia University, New York City, and Pratt Institute, Brooklyn.

In combination with the New Jersey Home Economics Association and the Nutrition Council, the Association is sponsoring five 2-hr. discussions on "Nutrition" at the Girls Trade School, Newark. Workshops in "Human Relations" are being presented in Camden, Newark, and Paterson this spring, with six meetings in each city. Instructors are faculty members of the Department of Management and Labor Relations, Rutgers University.

New York State Dietetic Association. *Rochester Dietetic Association* members met in January to hear Dr. Charles B. F. Gibbs, Assistant Professor of Medicine, University of Rochester Medical School, speak on "Clinical Aspects of Diabetes," and to hear Dr. Joseph L. Izzo, Strong Memorial Hospital, discuss "Research Aspects of Diabetes." A question period followed the two talks. In February, the Association had as its guest speaker Mrs. Glyndon G. VanDeusen who recently returned from an extended visit to New Zealand. The Diet Therapy Section of the Rochester group cooperated with the local Medical Association in the annual Diabetes Detection Week campaign in November. Posters were displayed by dietitians in most Rochester hospitals, and a consultation service was given by one dietary department. Several members of the Rochester Association have been participating in "weight control" classes sponsored by the Rochester Chapter, American Red Cross, through lesson planning and teaching.

Ohio Dietetic Association. On January 21, the Ohio and Cincinnati

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28 WONDERFUL FULLY PREPARED MIXES IN THE DOWNYFLAKE LINE . . . WHITE CAKE, DEVIL'S FOOD, YELLOW CAKE, EGG WAFFLE, EGG PANCAKE, GINGERBREAD, PIE CRUST, COOKIES, ETC.

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New Appointments, Veterans Administration

The following hospital appointments of dietitians have been made.

Name	Position	Location
	Boston Area	
Mary P. Dwyer	Staff Dietitian	Northport, N. Y.
Helena E. Farren	Staff Dietitian	Boston, Mass.
Elizabeth Prescott	Staff Dietitian	Boston, Mass.
	Washington, D. C. Area	
Dorothy J. Elliott	Staff Dietitian	Aspinwall, Pa.
Ruth Hearn	Staff Dietitian	Baltimore, Md.
Viola V. Johnson	Staff Dietitian	Perry Point, Md.
Grace H. Kehoe	Staff Dietitian	East Orange, N. J.
Marguerite E. McKean	Head Dietitian	Marion, Ind.
Dolores O. Minor	Staff Dietitian	Lyons, N. J.
Angela B. Ouly	Staff Dietitian	Perry Point, Md.
Mary Ruffin	Staff Dietitian	Brecksville, Ohio
Donna C. Sommerfeld	Staff Dietitian	Aspinwall, Pa.
	St. Louis Area	
Norma G. Borreson	Staff Dietitian	Grand Junction, Colo.
Grace M. Cables (Ret. Mil. Serv.)	Assistant Chief Dietitian	Houston, Tex.
Rose Doring	Staff Dietitian	Jefferson Barracks, Md.
Georgeanne M. Freudenreich	Staff Dietitian	Wadsworth, Kans.
Margaret A. Kellert	Staff Dietitian	Muskogee, Okla.
C. Jean McDonald	Staff Dietitian	Ft. Lyon, Colo.
Carolyn M. Richmond	Staff Dietitian	Little Rock, Ark.
Clara L. Trindle	Staff Dietitian	Muskogee, Okla.
	Atlanta Area	
Gwendolyn L. Dupree (Reappt.)	Staff Dietitian	Columbia, S. C.
Mrs. Will Harper	Clinic Dietitian	Nashville, Tenn. (Reg. Off. Clinic)
	Fort Snelling, Minnesota Area	
Barbara Drew	Head Dietitian	Dwight, Ill.
Eileen L. Kelly (Reappt.)	Head Dietitian	Tomah, Wis.
Ethel Trice	Staff Dietitian	Downey, Ill.
	San Francisco Area	
Barbara Anglin	Staff Dietitian	Vancouver, Wash.
Lenora Argyle	Head Dietitian	Salt Lake City, Utah (NP)
June R. Boyke	Staff Dietitian	Long Beach, Calif.
Carroll O. Carlson	Staff Dietitian	Los Angeles, Calif. (GM & S)
Joan Daniels	Staff Dietitian	Spokane, Wash.
Ardiena J. Doezie	Staff Dietitian	Los Angeles, Calif. (NP)
Nettie-Adlyn Landau	Staff Dietitian	Walla Walla, Wash.
Dorothy E. Taylor (Ret. Mil. Serv.)	Chief, Dietetic Service	Tucson, Ariz.

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Dietetic Associations co-sponsored a workshop for teaching dietitians at the University of Cincinnati. Attendance was limited to dietitians who teach student nurses and to representatives of dietetic internships. Elizabeth Munves, School of Education, New York University, served as a consultant, as did Mable Darrington, College of Nursing and Health, University of Cincinnati, and Eva N. Ylvisaker, Children's Hospital, Cincinnati. The workshop dealt with motivation and techniques, rather than curriculum.

The first part of the program was concerned with three kinds of leadership (teaching) and how it feels to experience each of them: autocratic, laissez-faire, and democratic. Another portion of the program used the teaching techniques of demonstration, role-playing, and group discussion to show how a class in feeding the patient might be handled. Teaching techniques were discussed, as well as trends in nursing education. A recorder was employed for the meeting, and detailed notes were later sent to all participants.

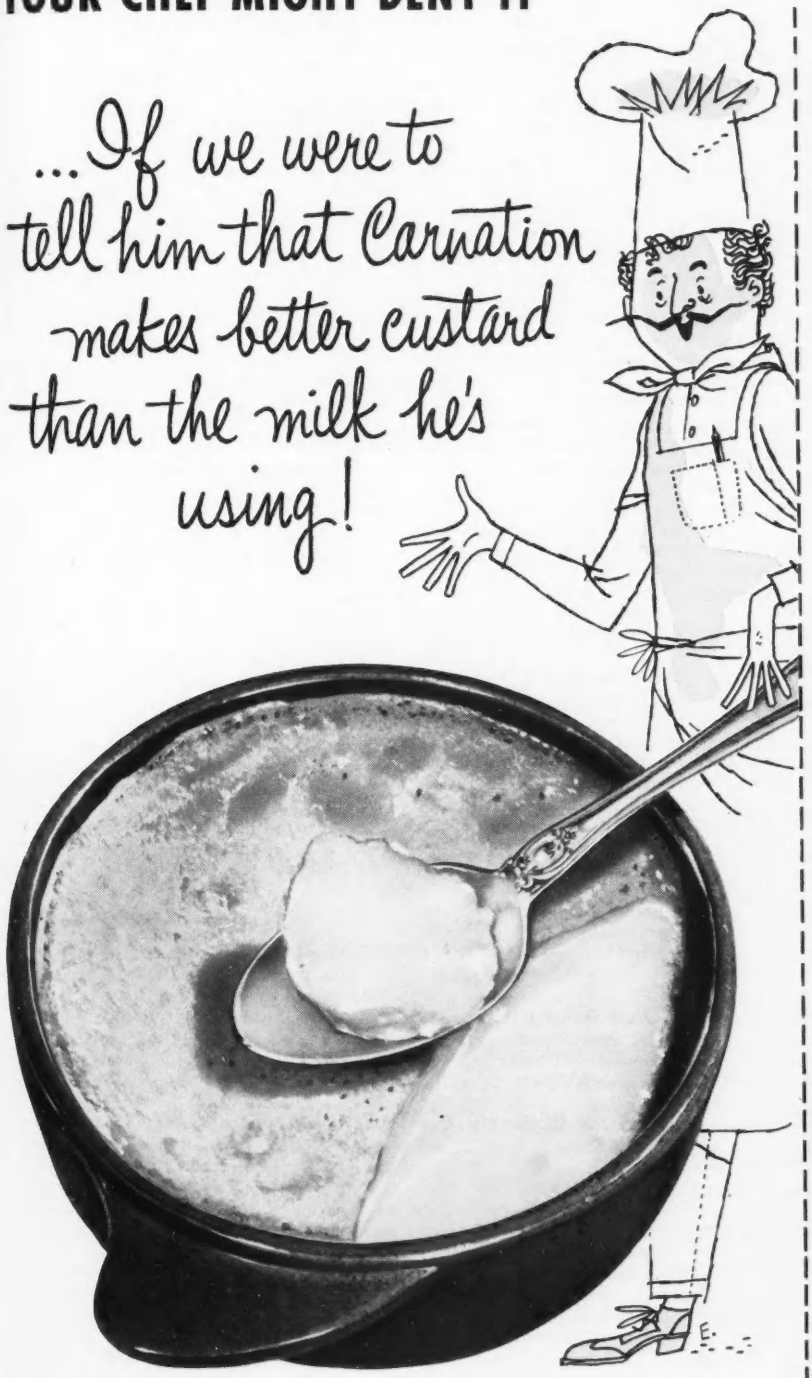
The *Columbus Dietetic Association's* January meeting was held in the Mills Cafeteria where members were guests of the Mills organization. Richard Williams, Manager, explained the history and development of the organization and conducted a tour of the establishment. In February, a panel discussion on "Food Cost and Food Cost Accounting" was presented with T. W. Stein, Auditor, Fort Hayes Hotel, as consultant.

At the January meeting of the *Dayton Dietetic Association*, an announcement was made of a city-wide weight control project sponsored by the city Health Division and the Montgomery County Nutrition Council. The program was a slide show of Korea and Japan.

Pennsylvania Dietetic Association. The *Philadelphia Dietetic Association* held a Professional Education panel meeting on nursing education in January. The panel included: Mrs. S. Shaffer, Acting Principal, School of Nursing, Einstein Medical Center; Ella Riedell Williams, Professor of Home Economics, Drexel Institute; and Frances Godshall, Assistant Professor of Home Economics, Temple University. Senior college students also participated. The panel emphasized the importance of correlating nursing with nutrition at a time when the nursing student is learning those phases which involve nutrition. The student should be prepared to take her class knowledge to the clinical area and apply it. The dietitian should be part of the teaching group in order to absorb the objectives of the nursing education department which include a feeling for the education of the nurse rather than just to prepare her for state board examinations. . . In February, the Food Administration Section presented a program at the University of Pennsylvania Hospital. Frank Cohn, Duparquet Company, Chicago, discussed new trends in kitchen equipment and layouts and explained some of the factors which were taken into consideration in the installation of the hospital's new

YOUR CHEF MIGHT DENY IT

...If we were to tell him that Carnation makes better custard than the milk he's using!



Carnation Performs Cooking Miracles Not Possible With Any Other Form of Milk

but it's a fact... and there are plenty of reasons why

THE RICHER, more golden color of Carnation custard doesn't "just happen"! Nor its smoother texture and creamier flavor. It's because Carnation has two characteristics your chef won't find in his present cooking milk.

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IT'S these two characteristics that make Carnation the perfect milk for *all* cooking and baking. But we'll be happy if we can just convince your chef that Carnation makes better custard. The way to do that, of course, is for him to *try* the recipe here.

...and for you to *suggest* that he try it.

Carnation Custard

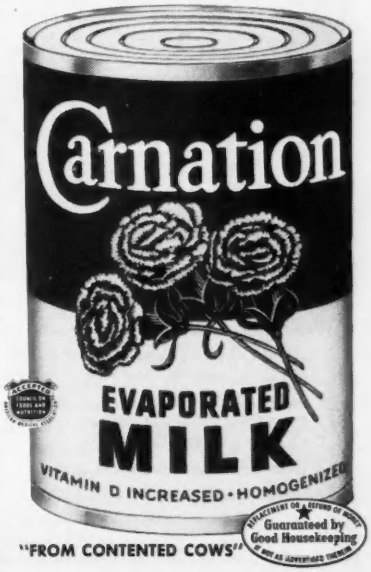
(Makes 6 medium custards)

4 eggs	1⅔ cups (1 large can) undiluted Carnation Evaporated Milk
½ cup granulated sugar	
½ teaspoon salt	
1 teaspoon vanilla	⅔ cup water

Beat eggs, sugar and salt together. Add vanilla, Carnation and water. Beat until thoroughly mixed. Pour into 6 individual baking dishes or custard cups. Sprinkle with nutmeg, if desired.

Place custard cups in pan 2" to 2½" deep. Pour hot water around cups. Bake in moderate oven (350° F.) about 40 to 45 minutes (or until silver knife comes out clean when inserted in custard).

Remove custards from pan of water. Cool before serving.



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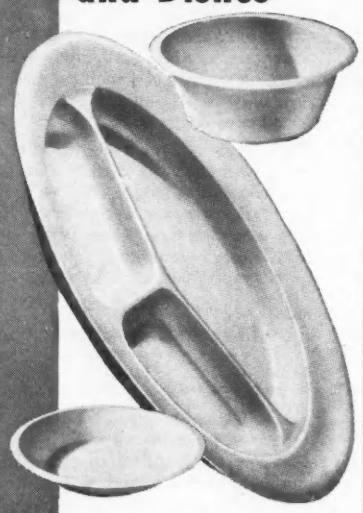

Dishwashing can be eliminated entirely by this "single service" tableware. Individually molded to shape and depth of standard chinaware . . . CHI-NET plates and dishes are attractive as well as practical. You can pile these plates and dishes high with food . . . they'll never buckle or bend when held by the rim. Waterproofed and grease-resistant, CHI-NET doesn't get soggy, resists pressure of knife . . . won't scrape or flake off. By the makers of the famous KYS-ITE MOLDED PLASTIC TABLEWARE.

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kitchen. Mr. Cohn's talk was followed by a tour of the kitchen. . . The Philadelphia Association was represented this winter, both at the Annual Tri-State Hospital Association Conference and the Fourth Annual Dinner of the Greater Philadelphia Movement.

Washington State Dietetic Association. May 1 and 2 are the dates for the spring convention of the Washington State Dietetic Association, to be held in Seattle. The Vocational Guidance Section of the Washington Association is centering interest on the Washington State Paramedical Committee which combines the efforts of dietitians and physical and occupational therapists.

The *Seattle Dietetic Association's* project for the year is to contribute financially and give personal assistance to the Washington State Paramedical Committee in giving lectures at local high schools, clubs, and colleges. Spot radio announcements about the Committee have been made in Spokane and Pullman, and members throughout the state have canvassed libraries to ascertain that information relating to dietetics and physical and occupational therapy is up-to-date and adequate.

New president of the *Tacoma Dietetic Association* is Geraldine Kem, Tacoma Indian Hospital.

Association Activities

Our Representatives. National representatives attending state dietetic association meetings are:

April 8–10—LeVelle Wood, Louisiana Dietetic Association, Baton Rouge
April 16–17—Lida Jamison, Missouri Dietetic Association, Kansas City
April 16–17—Corinne Robinson, Virginia Dietetic Association, Richmond
April 17–18—Beulah Hunzicker, Michigan Dietetic Association, Detroit
April 17–18—Louise Esch, Texas Dietetic Association, Houston
April 17–18—Dr. Margaret A. Ohlson, Wisconsin Dietetic Association, Milwaukee
April 22–24—Grace Bulman, New York State Dietetic Association, Syracuse
April 23–24—Beulah Hunzicker, Pennsylvania Dietetic Association, Pittsburgh
April 24—Henderika J. Rynbergen, District of Columbia Dietetic Association, Washington
April 24–25—LeVelle Wood, Ohio Dietetic Association, Cleveland
April 29–30—Grace Bulman, Indiana Dietetic Association, Indianapolis
May 1–2—Cora E. Kusner, Washington State Dietetic Association, Seattle
May 4–5—Margaret Cowden Bernard, Arkansas Dietetic Association, Hot Springs

Annual Meeting Plans. Elizabeth Starr and Gertrude Miller, Co-Chairmen of the Local Arrangements Committee, met with Beulah Hunzicker, Ruth Yakel, and Mildred L. Egeberg in Los Angeles on February 28 to make plans for the 36th Annual Meeting in August. A special meeting of chairmen and co-chairmen of the local committees was also held.

Representatives. Dorothy L. Bovee was A.D.A.'s official representative at the *Instructor Training Course on Improvisation for Civil Defense Emergency Feeding* held at Fort Lee, Virginia, March 4 to 6. This pilot course was arranged cooperatively by the Federal Civil Defense Administration and the Quartermaster Corps of the Army.

Mary Reeves was the Association representative at the *National Council on Family Relations* held in Chicago, February 27.

Captain Nancy Evans represented A.D.A. at the Conference on *UNESCO's Voluntary International Assistance Program* held March 16 in Washington, D. C.

Vocational Guidance. Restyling of the exhibit, *Dietitians—Nutritionists Serve the Community*, is now completed. It will have its first showing at the annual meeting of the American Personnel and Guidance Association this month. In June it will appear at the A.H.E.A. convention in Kansas City.

Five hundred women's page editors throughout the United States have recently received *Dietetics as a Profession*, accompanied by a letter and news release. The material is slanted to the career and teen-age editors whose columns appear within the women's section.

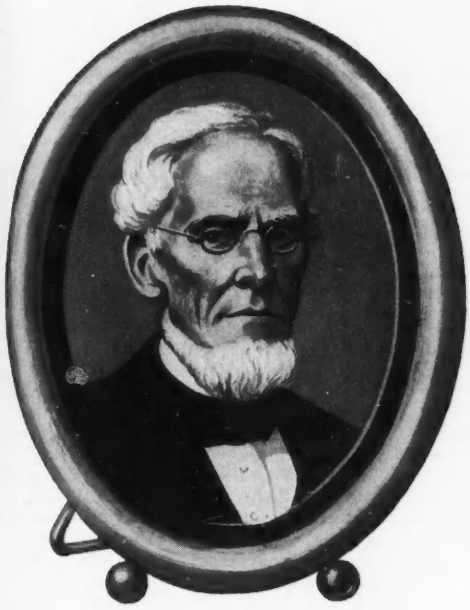
New Leaflet. The new leaflet announced as "Facts on Dietetics for You" has acquired a new title in the process of production: "Chart Your Course Toward Dietetics." It is now available from A.D.A. headquarters office at 3 cents per copy or $2 per 100 copies.

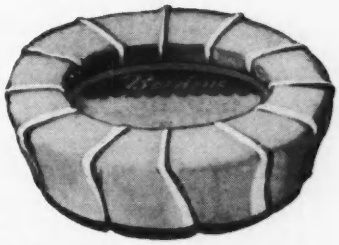
News of Advertisers and Exhibitors

Turkey Handbook is the title of a colorful new manual of information on the preparation and cooking of turkey for institutional use, recently issued by the *National Turkey Federation* in collaboration with the National Restaurant Association. This seventy-two-page manual contains 130 tested quantity recipes for use of whole turkeys and turkey parts in mass-feeding institutions, as well as detailed information on all phases of institutional turkey purchasing, preparation, and use. Special sections are devoted to the use of turkey in hospitals and school lunch. Some of the topics covered are: "Digest of U. S. Regulations, Standards and Grades for Turkeys," "Where, When and How to Buy Turkeys," and "Results of Turkey Yield and Cost Tests According to Bird Sizes." The booklet is available free if requested on an official letterhead.

General Foods Corporation has recently extended its research fellowship and grants-in-aid program to include the support of research activities at: Massachusetts Institute of Technology, the Institute of Paper Chemistry, the Universities of New Hampshire and Wis-

We can take milk's goodness for granted





You might have passed him by... this old man whose eyes shone with a young man's purpose. He was fifty-six, and his hair and beard were white. His clothes were threadbare. He was penniless and being sued for debt besides. He had tried many things and had known failure. But he had three assets left: Integrity, the will to win, and a good name. This was Gail Borden...

...because he didn't

Many adults and thousands of infants were dying yearly in New York from infected milk...when Gail Borden finally achieved his dream...the manufacture of condensed milk that stayed pure, fresh and wholesome. He made milk *safe* for you. * He established the first code of sanitation in dairy practice, and fought ceaselessly for cleanliness. He paid his dairymen to destroy infected milk. * The quality in the bottle of milk we take for granted today is only part of the Borden story. The Borden Company in 1857 began the manufacture and distribution of Gail Borden's newly invented condensed milk, the first milk food for infant feeding. * Borden's "firsts" have been many. First to manufacture a dried milk specialty for infant feeding—Dryco. * First to provide a specially prepared food for infants, children, and adults allergic to milk—Mull-Soy. * First to provide a complete infant food carrying the fatty acid pattern and amino acid pattern of human milk—Bremil. * The lists of Borden contributions to the development of milk in all its forms as a safe, dependable source of nutrition are too many to list here in their entirety. * But if it's Borden's—it's got to be good.

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Manufacturers and distributors of BORDEN'S Beta Lactose • BIOLAC infant food • DRYCO infant food • KLIM powdered whole milk • BREMIL powdered infant food • MERRELL-SOULE Powdered Skimmed Milk • MULL-SOY hypoallergenic food BORDEN'S Evaporated Milk • STARLAC non-fat dry milk Instant Coffee • Fresh Milk • Ice Cream and Cheese.

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Based on normal nutritional requirements for adults, the menu patterns, sample suppers, and pointers on meal planning have their place in any household. Practical ideas for making the work of the manager easier and pleasanter include a weekly marketing guide, hints for economy in buying and storage, and suggestions for serving.

This is a project of the Diet Therapy Section of The American Dietetic Association.

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consin, and Iowa State College. Subjects under special study as part of the program include the "cold sterilization" of foods, spray drying engineering, agricultural trace elements, and structural design of cartons.

"Sugar Krinkles," a new and different version of Krinkles, has been introduced as a member of *General Foods'* Post Cereals family. The sugar coating on the new product has been improved and is not sticky. Sugar Krinkles will be marketed in a 5¼-oz. carton which contains more servings per package than the earlier type of Krinkles.

General Foods will acquire Kool-Aid, a powdered drink, on or about May 15 and add Perkins Products, manufacturers of Kool-Aid, as a wholly-owned subsidiary, operating as a separate unit and managed from its own executive offices in Chicago.

General Foods is selling its Diamond Crystal-Colonial Salt Division to the Moore family of St. Clair, Michigan, descendants of the founder of the original Diamond Crystal Salt Company.

Kraft Foods Company's Kraft Oil is now available in institutional-sized cans throughout the country. The oil, suitable for salad dressings; dough blending; and deep-fat, pan, and grill frying, is offered in 1- and 5-gal. cans.

The Institutional Division of *Klenzade Products, Inc.* is offering a new, improved "Kleer-Mor," a powder-type dishwashing cleaner suitable for institutions and food-serving establishments. This detergent now contains "chelating" agents which, in combination with scientifically balanced polyphosphates, sequester both inorganic and organic materials. Kleer-Mor can also be used to clean enameled surfaces of coolers and refrigerators.

Boonton Molding Company is offering an 11-in. "two-in-one" service platter, which has a partition to accommodate a cup. With this combination tray and saucer, a sandwich, salad, or pie, and a cup of coffee can be served as one unit. The new platter is available in seven colors. The same size platter may also be obtained without the cup partition.

Toledo Scale Company announces a new Model 2110 hanging scale which is suitable for ingredient weighing or general storeroom use in restaurants, institutions, and schools. It has large (13¼ in.) dials on both front and back to facilitate reading of weight indications. The scale is suspended from an overhead support with a swivel-type hanger, and a large porcelain enamel pan holds the items to be weighed. The dial capacity is 10 lb. with 1-oz. graduations; its maximum scale capacity is 30 lb., and its over-all height is 12 in.

Universal Dishwashing Machinery Company has developed a small, self-contained electric booster unit, designed for use exclusively on dishwashing machines. It may be installed on new Universal dishwashing machines or purchased as a separate unit for use with other makes. The entire unit is connected to a 140°F. hot-water supply line, and thermostatic control is set at 180°F.—the health specification for final rinse water—on a dial thermostat.